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EDITED BY WILLIAM HUNTING, F.R.C.V.S.

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THE SIGNIFICANCE OF THE COUNCIL ELECTION.

The Veterinary Surgeons' Bill is still awaiting its dubious chance of consideration during the present Parliamentary session; and we are forced to recognise that the Government's crowded programme renders it only too likely that we may have to wait another year before our measure obtains a hearing. In the meantime it may be useful to point out how completely the profession, at the recent election of Council, expressed approval of the Bill and its initiators.

Quiet as the election was, it was definitely fought upon the Bill. There were nine vacancies; and nine of the twelve candidates issued a joint circular asking for election in support of the Bill. All nine were elected; and thus, at first sight, the profession's approval of the Bill is made clear. But it becomes still more clear when we examine the political records of some of the nine elected candidates, and compare the votes received by elected and non-elected alike with those gained by the same men in former years.

Sir John M'Fadyean was President of the R.C.V.S. when the Bill was drafted, has supported it wholeheartedly from the first, and is now Chairman of the Annual Fee Committee. At this election he heads the poll with the highest number of votes recorded since 1896. Mr. Trigger, the originator of the idea of an Annual Fee, comes a good second. Mr. Garnett, who brought the matter to a head in 1907, was the first Chairman of the Annual Fee Committee, and has often been styled the "Father of the Bill," is third with over a thousand votes. Major-General Thompson, a supporter of the Bill from the first, and a member of the Annual Fee Committee from its inception, is fourth. Of the nine successful candidates, then, the four who are most closely associated with the promulgation of the Bill are placed at the top of the poll. Is it possible to imagine a more distinct mark of the profession's approval of the Bill, or a more emphatic vote of confidence in the men who brought it forward?

On the other hand, we find two opponents of the Bill—Prof. Dewar and Mr. Spreull—amongst the unsuccessful candidates. Each has previously contested an election against the Bill—in 1908 and 1909 respectively—and a comparison of their present with their past polls is instructive. Prof. Dewar was returned in 1908 with 936 votes. This year his figure is reduced to 671, and he is rejected. Mr. Spreull was one of the eight candidates who unsuccessfully opposed the Bill at the election of 1909. On that occasion he polled 630 votes, but this year he only secures 453; and this low figure of 453 has a further significance. In 1909 the lowest vote recorded against the Bill was 539; and that total was obtained when the votes were spread over sixteen candidates. This year an opponent of the Bill is again at the bottom of the poll, but though the votes were divided amongst twelve candidates only he obtains but 453.

All these figures point unmistakeably to one conclusion—that the opposition to the Bill is declining. Probably the main reason for this is an increasing recognition by the opposition that the Bill is really unavoidable—that no alternative method of securing the financial stability of the R.C.V.S. can be found. In the days when the Bill was a centre of controversy no effective alternative to its principle of compulsory contribution could be advanced; and naturally, as this became clearer, and at the same time the state of the College finances became more obvious, the opposition began to die away. The election just over proves finally that the Bill has ceased to be a controversial matter within the profession, and a close examination only emphasises the proof. The overwhelming majority of votes given to the Bill and to so many of its chief promoters is significant enough, and perhaps the quietness and complete freedom from excitement that marked the election is more significant still.

WHAT IS A CURB?

The above query is suggested as the result of perusing the expert evidence given in a recent Law case. Some of the experts spoke of curb as a disease affecting a "particular ligament." If this view was generally accepted, it would give to curb a more serious significance than it is justly entitled to, and it would be difficult to understand how the affection occurs in some instances in the absence of the usually accepted causes.

Any practitioner who has experience in examining young horses at shows must observe the number of cases of "slight curbs" that occur in animals that have never been handled or worked. So slight is the defect that in some instances a doubt may exist in the mind of the examiner as to the existence of the affection. The slight enlargement feels soft to the touch, and shows no heat or tenderness, and no lameness is present. Experience, however, teaches that such cases if untreated and put to work generally develop the ordinary curb, especially if the hock is of the formation known as "curby."

Now anyone considering the subject must doubt the view that curb depends on strain of the calcaneo-cuboid ligament. It is a well-known fact that many of these slight curbs, if treated, recover perfectly, and no evidences of the defect remain.

It would be interesting to inquire if the ligament has been actually found affected on post mortem examination, or whether this view of the pathology of curb is a purely theoretical one. Percivall (Hippo-pathology) appears to have made a special study of the subject, and points out that considerable wavering of opinion existed respecting the pathology of the affection, admitting at the same time that opportunities are seldom given to examine such cases post mortem. He regarded curb as due to "effusion into, or thickening of, the sheath of the flexor tendons," and drew attention to the anatomy of the parts concerned, pointing out that the perforatus tendon at the back of the hind leg was "clothed by cellular tissue, and by means of it connected with the parts around, and thus is confined in its place. In front of the tendon, in the midst of this enveloping tissue, is a serous bursa; while behind it, between its cellular investment and the skin, is a tendinous band to which has been given the name of annular ligament, whose glistening fibres are seen traversing the tendon, evidently for the purpose of binding it down, and so in action contributing not a little to its power and effect."

"Now if we, bearing this anatomical sketch in view, revert to the seat of curb, we shall find that the site of the tumour is directly opposite to the bursa in front of the perforatus tendon. Through this bursa or thecal cavity runs the perforatus tendon, and it is the play the tendons enjoy at this particular part, in consequence of the existence of the bursa and the looseness and paucity of their attachments, that causes sprain or laceration to be seated here; the part sprained or lacerated being neither the tendon nor the ligament, but the cellular sheath of the tendons." . . . "Effusion takes place . . . and probably pervades cellular tissue and bursa together. . . . What ultimately takes place in curb, and in fact constitutes the disease in the ordinary, inveterate or permanent form—being the consequence of interstitial deposit—is a hard, callous condition of the tumour, and this is the state in which horses are brought to us after inflammation has departed. It consists in a thickened and indurated condition of the cellular sheath of the tendons." Percivall gives an excellent plate, showing the dissection of a hock affected by curb, and the abnormal condition of the sheath of the tendons above described. He also admits that other morbid appearances might occur, due to a continuation, or a return, or a reproduction of the diseased action. In one case of apparent curb which he examined post mortem he discovered a thorn, half-an-inch in length, sticking in the substance of the perforatus tendon, precisely in the seat of curb.

I have ventured to give the above quotations from Percivall at some length, because they explain some important points in connection with the subject of curb. The small "soft" curb, so common in young horses, would appear to be due to effusion into the bursa mentioned. In fact it feels exactly as if this was the case, and certainly does not give one the idea of a lesion of the ligament. Moreover, the latter would not be so likely to disappear even with any form of treatment.

As regards the etiology of curb, if we accept the view of Percivall, it is easy to understand how the affection may occur in the absence of hard galloping or leaping. Sprain or rupture of the cellular sheath and bursa of the perforatus tendon is surely more easily induced than sprain of the calcaneo-cuboid ligament. Percivall records two instances where horses "threw out curbs" in the course of walking exercise, probably, as he points out, due to the animals being fresh and jumping about.

I met with an instance lately in which a 5-year-old huntress was sent to my infirmary for treatment for a simple ailment, and after being in the stall for a few days she threw out a curb. The owner could not understand it, but I pointed out that it was an example of how easily such affections may occur, and that had I examined the animal for soundness prior to her arrival, nothing would have convinced him but that she was unsound prior to purchase.

Is an enlargement on the seat of curb always due to curb? Certainly not if it arises from an injury such as is of common occurrence in hunters.

Apparent enlargements in the postero-external aspect of the hock, due to well-developed prominences on the bones, are frequently mistaken for curb, even by those who pride themselves in their horsey knowledge. Very often it is the candid friend, who after lunch on a Sunday is taken to see the new purchase, and points out that the animal has a curb; he may even say that he detects evidences of blistering. The result is that the horse is sent to the V.S. who has examined him, with an irate letter complaining of negligence. This is not an uncommon occurrence, so that it is certainly advisable to point out to the purchaser any peculiarity in the formation of the hocks, and so prepare him for the opinions of the horsey critic.

Similar remarks apply to the question of "coarse" hocks.

I should much appreciate a discussion on the etiology and pathology of curb, especially if those who give their views have had the opportunity of examining specimens of hocks affected with this disease. If it be the case that curb exists in various forms, it would be interesting and useful to obtain definite information on the matter.

E. Wallis Hoare, F.R.C.V.S.

PARALYSIS IN THE DOG, CAUSED BY HEART DISEASE.

History.—The subject was a ten-year-old Dandy Dinmont terrier, which according to its owner had been quite well and bright up to the time of its seizure. Within an hour-and-a-half of his last seeing the dog apparently well, it was reported to him as unable to stand, and dragging its hind quarters.

I was asked about the dog. Advised a purge, and expressed a desire to see the animal. It was brought to me on the third day of its illness for my decision as to the value of treatment.

Symptoms.—The dog was completely paralysed behind a point corresponding to the 11th Dorsal vertebra. The pulse was slow and regular. Temperature 101° F. Mucous membranes injected and bluish. External temperature of paralysed parts was slightly raised. Urine was seen dripping involuntarily from the prepuce, and on manipulating the abdomen the bladder was found extremely distended. It was easily evacuated by pressure. No impaction of the bowel could be felt, and was not expected, because I was informed by the owner that the purge (castor oil) had been very effective.

Considering the dog's age, and the generally chronic course of these disturbances, I advised destruction.

Post mortem examination.—All organs were apparently healthy except the heart, spinal cord, and prostate gland.

The pericardium was normal. The heart was not enlarged. The myocardium of the left heart, just below the Coronary groove, showed a light, buff-coloured spot, denser in consistence than the rest of the wall. On section of the wall the buff spot was found to extend through its thickness. It was tendinous in consistence, circular in outline and the size of a halfpenny.

The mitral (Bicuspid) valves were inflamed, thickened and showing on their edges proliferations of a pinkish colour, resembling granulation tissue. The largest was the size of a horse-bean. The Tricuspid valves showed similar but more extensive lesions than those of the mitral. The semilunar cusps of the Aortic valve were inflamed but showing no new growths. Here was evidently an endocarditis passing into the chronic state. There were no lesions of interest in the other organs, except an enlargement of the prostate gland.

Spinal Cord. The cord was removed from about the 6th Dorsal vertebra to its termination. The vessels (veins) were found extremely injected. The cord itself was very soft and pulpy, the posterior part almost creamy in consistence. A portion of the lumbar cord was intensely inflamed for about an inch of its length. The paralysis was then most probably due to changes in the cord brought about by venous hyperæmia of the spinal medulla. The hyperæmia of the cord was caused by dilatation of the heart following on valvular defects.

J. R. Hodgkins, Capt. A.V.C.

Dundalk.

ABSTRACTS FROM FOREIGN JOURNALS.

Tubercle Bacilli in the Gall of Tuberculous Animals.

Joest and Emshoff report (*Zeitschr. f. Infectionskrankh. u.s.w. d. Haust.*) a series of observations they have made to determine the presence or otherwise of tubercle bacilli in the gall of tuberculous animals. Fifty-seven tuberculous animals were examined (26 cattle and 31 pigs), and the galls of these were tested by inoculations into guinea-pigs and by examination of smear preparations. Most of the cattle and pigs observed were suffering from generalised tuberculosis; and in all cases either tuberculosis of the liver or at least a tuberculosis of the portal lymphatic glands was present. Altogether the presence of tubercle bacilli in the gall was demonstrated in fourteen cases (= 24·5 per cent. of the subjects observed). Six of these fourteen cases were in cattle and eight in pigs, the percentages of cattle and pigs respectively thus being 23 and 25·8. As in no case could a tuberculous affection of the mucous membrane of the gall bladder or of that of the larger excretory ducts be demonstrated, the bacilli in the gall must have passed out into it from the liver—that is, from tuberculous lesions in the latter organ.

The presence of tubercle bacilli in the gall naturally ends in their excretion into the intestine, and thereby into the open air. *Tuberculosis of the liver is therefore, in many cases, an open tuberculosis.* The significance of open hepatic tuberculosis in the dissemination of infection to other animals and to milk is equal to that of open intestinal and pulmonary tuberculosis.—(*Berliner Tier. Woch.*).

Congenital Diaphragmatic Hernia of the Stomach and Spleen in a Horse.

Lesbougries records (*Revue Vétérinaire*) a case of a horse which showed symptoms of influenza, with pulmonary obstruction upon the right side. Auscultation revealed borborygmus upon the same side. Despite treatment, the animal died three days after the commencement of the illness.

Post mortem examination revealed the following lesions. The opening of the thoracic cavity permitted the escape of a considerable quantity of alimentary material. The stomach and the spleen were found under the right lung. These two organs had become totally prolapsed into the thorax, forming a diaphragmatic hernia. An *ante-mortem* rupture, about 2 to 2½ inches long, was found upon the lesser curvature of the stomach. In the centre of the aponeurotic portion of the diaphragm was a circular opening of eight inches in diameter, regularly rounded in almost all its circumference except to the left, where it was torn. Its edges were smooth, thin, and pearly white in colour.

The author advances the following view as the most acceptable hypothesis to account for the lesions found. The horse had been affected with congenital hernia of the stomach, and was therefore particularly predisposed to contract a gastric indigestion. The stomach, the peristaltic action of which had already been enfeebled by the effects of influenza, had become surcharged. From its weight, it had fallen further forwards into the thoracic cavity, forming an acute angle with the duodenum which arrested the passage of aliment.—(*Annales de Méd. Vét.*).

W. R. C.

[Nothing is said of the age or the previous history of this horse.—*Transl.*].

CENTRAL VETERINARY SOCIETY.

A meeting was held on Thursday, June 6th, 1912, Mr. R. J. Foreman, President, in the chair. The following members signed the attendance book:—Messrs. B. Gorton, Wm. Hunting, P. W. Dayer Smith, R. Bryden, J Willett, N. Almond, Alex. Crabb, J. F. Macdonald, W. Perryman, H. D. Jones, J. W. McIntosh, Prof. G. H. Wooldridge, G. Gordon, A. Neish, R. F. Wall, F. O. Parsons, G. H. Livesey, Wm Willis, J. Rowe, G. Upton, Prof. J. Macqueen, and Hugh A. MacCormack, Hon. Sec.: as visitors, R. W. Williams, E. S. Farebrother, and F. Ware.

The minutes of the previous meeting were taken as read and confirmed.

A letter was read from Mr. Coleman suggesting that in connection with the discussion to take place on the fees allowed by the War Office for veterinary surgeons might be included the fees paid by County Councils to the veterinary inspectors under the Contagious Diseases (Animals) Act.

The SECRETARY said he had written to Mr. Coleman saying he did not see how both subjects could be taken together, and asking Mr. Coleman to bring the matter forward as a proposition for the next meetihg.

MORBID SPECIMENS.

Mr. H. D. JONES exhibited some dorsal vertebræ from a horse which had slipped down and broken its back in the region of the lumbar vertebræ. On examining the spine he found the condition shown, which might be either a simple exostosis, a malignant growth, or tubercular.

Mr. MACDONALD showed the bones of the hind foot of a van mare with the following history. The mare brought the van home one evening, but the next morning was found on three legs, and in a few days pus formed in the sole, about an inch in front of the frog, and later on the discharge became distinctly carious. After about three months treatment she became sound again, and went to work for another six months, when she suddenly dropped dead in the street of ruptured heart, and he had the chance of getting the foot. The fracture of the pedal bone extended into the articular surfaces, of which there was ulceration.

The evening was devoted to impromptu discussions, the first being a point raised by Mr. Hunting on

WHAT IS THE SIGNIFICANCE OF A LONG STRIDE ON A LAME LEG?

Mr. HUNTING said as a rule when a horse was lame he stepped shorter with the lame leg, but there were a few cases in which a horse took a long step with his ame leg. He remembered one horse who took a long lstep with a front lame leg, and two others who took long steps with a hind lame leg, and one of the latter had now developed a distinct ringbone on the coronet. He thought the worst position for that horse would be when he put his weight upon his leg, and therefore merely taking a short step would not avoid it so well as taking a long one, where the heel came to the ground first. It was a very rare symptom, and he really did not know the significance of it, but he thought a meeting of practical men might possibly give some explanation. The late Prof. Williams distinctly mentioned a long step as a symptom of ringbone in the hind limb.

Mr. ALMOND had not noticed a long step in the fore limbs, but had frequently noticed them in the hind limbs, and usually associated with it lameness in the foot. If a horse was very lame in the foot of a hind limb he always put it very forward before he placed it on the ground.

Mr. WILLIS had noticed a long stride in the hind limb constantly associated with lameness in the front part of the foot, or at any rate below the fetlock. A ringbone, or sandcrack, or horn tumour in that region would give rise to a long stride. In the fore limb he had noticed a long stride after recovery from dropped elbow or radial paralysis. He thought it also occurred in cases of destructive arthritis of pedal joint—most markedly when hind foot was affected.

The PRESIDENT said most cases he had seen had been in Keratomas: buttress foot and sand-crack, and it had been more pronounced in the latter than anything else, or at any rate the animal tried to make the long stride, making the attempt and drawing back the foot before putting it dswn.

Mr. PERRYMAN thought the expression long stride was a little misleading. The forward stride he had always looked upon as the evidence of the animal trying to throw the weight of the body on to the back parts of the limb, which was characteristic of some anterior lameness. He would rather put the question: Is the stride longer, or does the horse start further forward with his stride? He should like to know if Mr. Hunting had measured the stride to see whether there was really a longer stride than with the other limb.

Mr. HUNTING said he did not think he could have been deceived from the observation of his eye.

Mr. PERRYMAN said the horse started the stride with the limb well underneath the body and the stride appeared to be longer, but his impression was that it was only an appearance.

Mr HUNTING said it was questioned by some pathologists whether the horse could take a stride with one limb longer than with the other.

Mr. WILLIS said it was a crab-like movement if the animal took a longer stride on one side than the other. If the horse moved with longer strides on one side than the other it would be really going in a circle.

Mr. NEISH said every horse that was lame behind, if it had any pain in the foot, would naturally take a longer stride with the lame foot than with the sound one, for the simple reason that when he had the weight on the lame foot he quickly put the other one down to lessen the pain.

Prof. WOOLDRIDGE asked whether Mr. Hunting had formed any views for himself.

Mr. HUNTING said he had not.

Mr. WALL thought the action of the forelegs prevented the animal going in a circle such as Mr. Willis mentioned.

Prof. WOOLDRIDGE said that the only step that was in reality a long step or a short step was the first step taken from the stationary position, both feet being level at the moment of starting. If it was a short step the horse must of necessity bring the leg further forward next time to compensate for a short step, otherwise he must go round in a larger or smaller circle, or leave that leg behind, an obvious absurdity. The whole thing was an optical illusion with regard to the relative positions of the two legs when they were on the ground. The actual steps after the first one being of equal length.

The PRESIDENT said the easiest way would be to measure on soft ground the steps of the next lame horse seen.

OCULT SPAVIN.

The subject of occult spavin was drawn, and opened by Mr. Almond, who said he had met with a good many lamenesses in the hind limb which he had attributed to that cause, and had always found them extremely intractable. There were various theories as to the origin of occult spavin but he had nothing original to add to them. He had usually come to the conclusion that he had an occult spavin to deal with when the lameness had been more or less continuous in the hock and the pain was greater after exertion. In ordinary spavin a moderate amount of exercise was generally attended with

an improvement in the gait of an animal, but as a rule a horse with occult spavin was just as lame after exercise as he was before. The ordinary spavin with external exostoses he had usually found to respond to rational treatment, but the same could not be said of ulceration of the articular surfaces of the hock joint, which might be the gliding joints.

Mr. WILLIS said the treatment of spavins, whether ordinary or occult, in his hands had been pretty well unsuccessful. He did not think any treatment of occult spavin in the ordinary way was of any use; it was simply a question of putting the animal at such work as he could do. He remembered driving such a horse as a trapper. The animal had ulceration in both hock joints and he drove it for six or eight months in light work, and then it became so sound that he worked it for another three years in a bus. In that animal he did not believe there was a gliding joint in the hocks that was not ulcerated. The worst thing that could be done was to work such a horse hard one day and then hang him up another day. He believed the diagnosis of occult spavin was soundness after a period of rest. He had a notion he could diagnose occult spavin, but he could not explain how it was done.

Mr. UPTON had noticed that spavin cases were more or less hereditary, and he looked upon ulceration of joints as rheumatoid. He thought the tendency in the system might be bred out. He had a mare now that was always lame in the hock, and she had a colt two years old showing the same affection, although the father was one of the best horses. He admitted that extra strain would cause trouble, but believed that if the cause of the ulceration of the cartilages could be found it would be discovered that the tendency was bred in the animal.

The next draw for a subject resulted in

FOUL MOUTH IN THE DOG.

Mr. ALMOND said he had a great difficulty in dealing with such a condition. He had often found it associated with deposits on the teeth, loose teeth, ulcerated gums, ulcerated tongue, etc., but when all those conditions were removed, in a great many cases the foul mouth still existed, notwithstanding the great variety of washes, deodorisers, disinfectants, and other agents used. The condition was sometimes found in young dogs, two years old. He should like to know whether the foulness arose from the mouth or the stomach, or from both.

The PRESIDENT had had a number of cases which it had been absolutely impossible to do anything with at all, and the condition had not been due to the teeth. Very often he had found it in conjunction with a cough which he took to be a stomach cough. Bismuth, and that kind of thing did not seem to have any effect. He thought the breath itself was offensive because when the animal coughed the condition was generally worse. A course of stomach alteratives was about as good a thing as anything after the mouth had been seen to. But even after the mouth had been cleaned out there was still the odour, so that he thought it must come from the stomach.

Mr. MACCORMACK said in his experience if an animal's gums were not ulcerated nor the teeth bad, and the offensive breath was present, one could not do better than give some ordinary willow charcoal in 5 to 10 grain doses once a day. He had several cases a short time ago in which by that treatment the disease disappeared after giving half a dozen powders. Of course a little aperient medicine must be given, but dependence should be placed on the powder.

The PRESIDENT said he had tried the charcoal treatment in two cases but had given it up.

Mr. J. WILLETT said there was no doubt in his mind that it was stomach derangement. It was never found in a dog with clean teeth, and was found mostly in the toy dog. It seemed to him chronic indigestion, and the trouble could not be stopped without stomachics. He found bismuth and soda tabloids, if continued long enough, got rid of the condition. In small dogs the teeth were seldom used in mastication, everything being prepared for them, and accordingly they bolted the food without using the teeth.

Prof. WOOLDRIDGE thought in the majority of cases the condition was due to tooth trouble, but in some cases it was not so, and he agreed with Mr. Willett in regarding many of those cases as due to indigestion or gastric catarrh. If one looked carefully at the teeth a little deposit, not exactly tartar, but a very soft furry substance, such as was found on the tongue, would be discovered, and he thought it was usually associated with that condition. The treatment Mr. Willett had indicated was the one he generally practised, giving in the first instance a dose of calomel and following it up with carbonate of bismuth and bicarbonate of soda, and using a mouth wash consisting sometimes of boracic and glycerine in water, and sometimes hydrogen peroxide in water. Attention to the diet was very necessary, and especial attention should be paid to mastication and the flow of secretions in the mouth.

Mr. ALMOND said he found excessive saliva in such cases, and attributed the collection of tartar upon the teeth very largely to that fact. The cases he had referred to were not those relieved by the treatment suggested, but cases which persisted month after month and year after year, and which nothing would relieve. There were no symptoms of indigestion in such cases.

Prof. MACQUEEN said he knew a little about bad breath in the dog, and in his experience the majority of the cases were due to local changes in the mouth. He was not quite so sanguine of success in treating mouth cases as Mr. Almond, who must be able to restore the condition of the dog's mouth very quickly. What he should like to know was how Mr. Almond managed to restore a dog's mouth to health by attending to the accumulation of tartar on the teeth and the extraction of a few loose teeth. In his experience the disinfection of an old dog's mouth was never successful. It would be neccessary to extract all the teeth and to fill all the empty alveoli, and pursue treatment for a long while. He was sceptical as to offensive odours arising from the stomach owing to indigestion; it was a convenient way of explaining a difficult position, but by no means satisfactory to say that if a dog had an offensive breath it arose from indigestion. If the odour was due to the generation of gases in the stomach perhaps someone would name an offensive gas that proceeded from the dog's stomach. The complaint made by the owner of the dog was that the breath was abominably offensive, and that was not due to indigestion but to changes either in the mouth or in the throat. He suggested that an examination should be made of the dog's throat, because in some instances he thought a material would be obtained from the mucous lining of the throat which would prove to be the cause of the offensive smell.

Mr. JONES asked whether it was possible that the odour might come from the lungs.

Prof. WOOLDRIDGE had noticed that a very large number of cases of acute gastritis in the dog began with pharyngitis and a cough. Pharyngeal trouble in no way negatived the presence of gastric trouble.

Mr. WALL said it was a most difficult matter to treat, but he had had great success from the use of aniodol. The teeth were properly cleansed, and the mouth put in good condition, and once or twice a day the teeth were brushed over with a solution of aniodol. It was a powerful deodorant and antiseptic, and had a very wonderful effect.

Mr. ALMOND also referred to malodorous skin in an otherwise healthy dog, which he had treated with a considerable amount of success by small doses of sulphur

twice a day. He thought the secretion from the skin decomposed and emitted an offensive odour.

Prof. MACQUEEN asked what was the secretion from the skin.

Mr. ALMOND said they differed under varying circumstances: there was perspiration for one thing from the sweat glands, and there were also sebaceous glands which discharged on to the skin.

Prof. WOOLDRIDGE asked whether there was any particular odour Mr. Almond regarded as being diagnostic of mange.

Mr. ALMOND said there was.

Mr. J. WILLETT said he had always been given to understand there were no sweat glands in the skin of the dog, that the dog perspired really from the tongue.

Prof. MACQUEEN asked whether it was a fact that the dog perspired from the tongue.

The PRESIDENT said he had seen one or two cases where there had been a dew on the hair of the dog, and was under the impression they were rather painful cases.

Prof. WOOLDRIDGE said his knowledge of the histology of the dog's skin was not very great, but he knew of no sudoriferous glands in the dog's skin. The generally accepted view is that dogs perspire from the pads of the feet and from the muzzle. He did not see why indigestion should not be blamed for the cutaneous odour in the same way as for odour of the mouth. The vast majority of cases were due to a skin lesion, and the next most common trouble was with the kidneys, and then the alimentary canal.

Votes of thanks having been passed to those who had brought forward morbid specimens, the meeting adjourned.

HUGH A. MACCORMACK, Hon. Sec.

SOUTH DURHAM AND NORTH YORKSHIRE VETERINARY MEDICAL ASSOCIATION.

A meeting was held in the Imperial Hotel, Darlington, on Friday, June 7th, Mr. W. Awde, Stockton-on-Tees, President, in the chair. There were also present: Messrs. G. R. Dudgeon, Sunderland; A. C. Forbes, Bishop Auckland; W. H. Blackburn, South Hetton; C. G. Hill, and J. H. Taylor, Darlington.

It was proposed by Mr. Hill, seconded by Mr. Dudgeon, and carried unanimously that the minutes of the previous meeting be taken as read and confirmed.

A letter was read from Mr. Blackburn which intimated that on account of removing to South Hetton he was afraid that he would not be able to attend the meetings, and that he would have to resign his membership of the Association.

Geueral regret was expressed by those present, and Mr. Blackburn stated that although it was difficult for him to attend he would, however, still continue his membership and attend as many meetings as he could.

A letter was read from Mr. P. B. Riley, of Barnard Castle, regretting that he could not be present at the meeting, but that he hoped to attend the next meeting, and would be pleased to become a member of the Association.

The SECRETARY reminded the members that the meeting of the Royal Sanitary Institute took place at York from July 29th to August 3rd at which meeting the Association were to be officially represented by the President.

The SECRETARY presented the report and acounts of the Victoria Veterinary Benevolent Fund, and said that it came as a surprise to him that so much distress occurred amongst old members, and amongst the widows and children of veterinary surgeons. Although the Association gave £2 2s. each year he hoped that individual members might be inclined to subscribe to so good an object.

Mr. P. B. RILEY, M.R.C.V.S., Barnard Castle, was nominated a member of the Association, on proposition of the Secretary, seconded by Mr. Blackburn, and unanimously carried.

CLINICAL CASES, ETC.

The SECRETARY produced the heart and pericardium of an Irish terrier which he had recently had under treatment. The patient was first seen by him about Christmas last year, when it was brought to the surgery suffering from a cough of an asthmatical character; the respirations were not much altered, and the pulse and temperature were about normal.

The dog was much improved after treatment in a week or so, and was not seen again until about March, when a message was received that the dog was worse. It appeared that the dog had not seemed so well for a few weeks, the cough having returned, and the breathing had gradually become hurried.

On examination the dog appeared to be suffering from asthma, the pulse was about 90, and the temperature 103 F. As time went on the breathing became worse and assumed the boat-like character seen in hydrothorax, the pulse became much quicker, and the dog commenced to lose flesh. On careful examination no fluid could be detected in the chest, and there were no œdematous swellings in any part of the body. In a few days the dog became much worse, the heart beats were quicker and smaller in character, and the dog would prop himself up against a chair or table leg and go to sleep, being unable to lie down in comfort. Recovery appeared hopeless, and the dog was destroyed.

On post-mortem a good pint of fluid was found in the heart sac, which showed well marked pericarditis, and the lungs were emphysematous, but there was no fluid in the chest cavity.

Mr. HILL said that he had recently had a case of hydrops pericarditis in a dog, which had followed the removal of an infective growth from the penis. In spite of all care which he had exercised in the operation, septic trouble commenced, and fluid formed in the pericardium. In this case, however, the presence of fluid was suspected, as œdematous swellings commenced to form about the throat, prepuce, sheath, and legs.

Mr. BLACKKURN showed two calculi taken from the bowels of an aged pony, 17 to 18 years old, which died after being ill only a few hours. The pony had had colic once or twice, but these attacks had soon passed off when treated.

Mr. FORBES said that he had taken three very large calculi from the bowels of a horse which had shown no pain until a few hours before its death. This animal had been ill for a week and beyond having no appetite and appearing dull, presented no other symptoms.

Mr. AWDE showed a curious specimen of a young pig which had two bodies with four legs each, but only one head. The bodies were joined together, but the legs were free; the bodies were those of females. He had come across the specimen when making a post mortem on a sow which had died, and had been reported as a suspected case of swine fever. The cause of death was septic metritis.

Mr. Awde also showed the pisiform bone of the off knee of a six-year-old horse which had been bred by himself. It was a particularly promising animal, and had won prizes in the show ring, but when three years old was kicked on the knee. All treatments were tried to check exostosis, such as blistering, firing, and all kinds of so-called bone absorbents, but no good resulted, and although after rest and treatment the horse went sound for a little time, lameness soon appeared. The horse was destroyed and a post mortem made, which

resulted in finding the pisiform bone much enlarged from new formations.

SEPARATION OF COLON AND RECTUM IN A MARE.

Mr. HILL said that he had recently had a very uncommon case in a mare. She foaled on the Monday quite normally and seemed all right until the following day, when she had a little pain and he was sent for.

On arrival he was informed that she had not passed any fæces, and he found on examination that there was a small tear in the vagina, but otherwise she seemed all right. On passing his hand into the rectum he found his hand in a large sac, and it was with much difficulty that he found the entrance to the floating colon; when he had passed his hand through the opening it closed upon it, and in withdrawing his arm the bowel closed tightly round his wrist. The bowel was drawn out through the anus, and he had to liberate his hand by gradually pushing away the bowel with the other hand. The mucous coat of the bowel was a deep purple in colour. The mare groaned a good deal and seemed to have pain when this was done. He left some chlorodyne to be given if the mare had pain, and nux vomica, ammon. carb. and sodæ bicarb. to be given if she was easy.

The mare lived for a week and during that time took a little mash and grass daily, but excepting a few small lumps passed no fæces. She had no pain of any consequence, and was eating up to a short time before she died, although towards the end of the week her pulse became rather rapid, but the visible mucous membranes kept a good colour all the time.

On post mortem, all the organs were healthy except the colon and rectum, which were separated from each other, the ends of the bowels being free and gangrenous. He thought that the mare when straining at the time of foaling had caused an intussusception of the bowels, and as time had gone on sloughing had taken place at that part.

Mr. FORBES thought this a most interesting case and illustrated once more that pulse and temperature were little to guide one in bowel cases, for whereas text books usually associated colic with a fairly good pulse and no increase in temperature, and enteritis with a bad pulse and high temperature, here we had a case where at sometime during the illness there must have been enteritis, and yet the pulse and temperature were very little altered.

He had a somewhat similar case in a cart horse about 17 h.h. The message he received was that the horse was very bad with inflammation. He took the necessary medicines, found the horse standing perfectly quiet, and on inquiry found that he had not had any pain, but would not eat. The pulse, temperature, and respirations were normal. He diagnosed the case as one of indigestion, and administered a physic ball on the Thursday. He was surprised to receive a post-card to say that the horse was dead. He went to the knacker's to make a post mortem, but unfortunately all the organs had been destroyed excepting a portion of the large bowel, which was black from mortification, similar to what one might get in a twist. It certainly seemed strange that an animal should show such post mortem lesions, as when he saw him only twelve hours before he died he was in the condition he had described. Of course something else might have been wrong, but the knacker assured him that, with the exception of the bowel, all was in order.

Mr. HILL said that he was called to a mare foaling, between four and five the other morning, when it was raining heavily, which was not a pleasant job so early in the day. He got the mare into a box, and found the foal's head was a little turned backwards, and it had a foot turned back. It was a simple case, and delivery was accomplished in a few minutes; the mare seemed perfectly right afterwards and commenced eating a mash. This was about 7.30 a.m., and she kept all right up to noon, and was left eating, and to all appearances well. But on the men coming to the box an hour later the mare was dead. He had not an opportunity of making a post mortem, but it was a very disappointing case.

Mr. BLACKBURN had recently had rather an interesting case in a pit pony which had been ill some time. It had been passing blood in the urine for months, and had been treated with many remedies before he saw it. As recovery did not seem probable he had the animal destroyed. He fonnd on post mortem malignant disease of the bladder of a septic character, the disease having affected the perineum, so that slaughter in this case was quite justified.

ELECTION OF OFFICERS.

President.—Mr. W. AWDE, F.R.C.V.S., Stockton-on-Tees. Proposed by Mr. Hill, seconded by Mr. Blackburn.

Vice-Presidents.—Mr. C. G. HILL, M.R.C.V.S., Darlington, and Mr. J. M. WALKER, F.R.C.V.S., West Hartlepool. Proposed by Mr. Blackburn, seconded by Mr. Forbes.

Secretary and Treasurer.—Mr. J. H. TAYLOR, F.R.C.V.S., Darlington. Proposed by Mr. Awde, seconded by Mr. Dudgeon.

Auditors.—Mr. W. N. DOBBING, M.R.C.V.S., Darlington, and Mr. C. G. HILL, M.R.C.V.S., Darlington. Proposed by Mr. Dudgeon, seconded by Mr. Blackburn.

Mr. DUDGEON said that he had a very important matter to mention in that he wished to know whether there was going to be another pic-nic this year. He hoped that there would be, for he was certain that although the one held last year was the first held in connection with the Association, it was a great success, and speaking for himself he could say that he never enjoyed a day more in his life.

The SECRETARY remarked that at the last picnic he thought the then President, Mr. Dudgeon, had suggested that they should take the Yorkshire Dales in turn each year, and that both Swaledale and Wensleydale were within easy reach. He might remind the members that the ladies who went last year expressed the hope that there would be a pic-nic each year, and if one was held this year he would be pleased to help in any way.

All the members present being in favour of a pic-nic, it was proposed by Mr. Dudgeon, seconded by Mr. Forbes and carried unanimously that one be held this year, and that Messrs. Dobbing, Hill and Taylor be appointed a committee to make the necessary arrangements.

The members subsequently had tea together in the hotel.

J. H. TAYLOR, Hon. Sec.

NORTH OF IRELAND VETERINARY MEDICAL ASSOCIATION.

The quarterly meeting was held in their Rooms, Davenys Chambers, North Street, Belfast, on Thursday, 30th May, at 7 p.m. The President, Howard McConnell, M.R.C.V.S., Armagh, occupied the chair. The following members were present: Messrs. F. R. McRoberts, J. Ewing Johnston, W. C. M. Smith, J. J. Ross, J. McLean, J. A. Thompson, J.P., Henry Gibson, James Hughes, James Gregg, John L. Orr and J. A. Jordan.

The minutes of the previous general and special meeting having been read and confirmed were signed by the President.

CORRESPONDENCE.

A letter from the successors of Messrs. John Clarke and Co., Ltd., Belfast, Surgical Instrument Makers and Chemists, stating that they wished to acquaint the members of the fact that they specially catered for the members of the veterinary profession, and that they

would be glad if the members of the North of Ireland would grant them a share of their patronage.

From Capt. J. Nicholas, A.V.C., informing the Association that as he was under orders to sail for India, he very much regretted having to tender his resignation.

The resignation was regretfully accepted.

From Mr. Gofton requesting the Association to elect its representatives on the Council of the National Association and to forward their names and addresses to him at an early date.

The matter was referred to Council.

From the Secretary of the Victoria Veterinary Benevolent Fund, Mr. W. Shipley, F.R.C.V.S., Great Yarmouth, drawing attention to the objects of the Fund, and requesting the members of this Association to give their individual support, and to help in every way in their power to further the objects set forth.

Mr. W. C. M. Smith proposed that those members who were in arrear with their subscription to the Association for three years be struck off the list of members. This was seconded by Mr. McRoberts and after discussion passed unanimously.

PRESIDENT'S ADDRESS.

HOWARD MCCONNELL, M.R.C.V.S., Armagh.

Gentlemen,—My first duty is to acknowledge my sincere thanks to the members of this Association for the great honour they have conferred in electing me to the highest position they have in their power to bestow. As a comparatively junior member of the profession, and as one in the ranks of the country practitioners, I am fully conscious of how small my claim is to such a position of honour. I accept my office as a grateful recognition of the small but earnest part I have taken in endeavouring to promote the welfare and successful organisation of this Society, which it has now become, filling a long-felt want, beneficial to the veterinary profession in the North of Ireland. At the same time our Society should be much stronger both numerically and financially.

Several advantages are derived from a Society such as this. In the first place it creates a feeling of good-fellowship amongst its members. Men anxious to get on in life meet together for mutual improvement; peculiarities are toned down, rough edges are smoothed, and a higher standard of manners and morals is created, thereby raising the level of thought and opinion amongst those who compose the memberships.

Secondly, a society encourages the habit of reading and thinking. If you have a subject or topic proposed for speech or essay the members present endeavour to say something that is correct and comprehensive about it: they acquire an accuracy of opinion upon that particular topic which may be most useful. At times, as the result of such discussion, they forward recommendations to those quarters where they may take effect, therefore the habit of thinking and reading is cultivated and strengthened. Then again you have the acquirement of ready speech. I trust the members will endeavour to attend, as the best recompense your officials can receive is a full attendance at all our quarterly meetings. I know it is often difficult to get away, but there can be no excuse for continued absence year after year. I say, without doubt, that members meeting at an Association such as ours is most beneficial—not only to the members themselves but to the profession. It makes us all meet as colleagues and not as opponents. It is customary, but I do not propose to say much on veterinary politics. We all deplore the financial state of our corporate body, although we in Ireland as far as my knowledge goes have not derived any benefit from that body. We are opposed in our daily practice by men holding foreign diplomas, by unqualified assistants doing work which should be entirely in the hands of qualified members, and above all qualified members are allowed to outstep the bounds of all professional etiquette and go about lecturing upon all diseases and their treatment, on the application of the tuberculin test, and even so far as to instruct the farmer how to perform certain operations. Does our Council consider this proper conduct? Or is there one law for the rich and another for the poor? Such lectures to my mind are only creating quacks and handicapping the qualified man, as often the professional man is not called in until the poor animal has been subjected to all forms of quackery and torture, and is either dead or dying. Lectures confined to veterinary hygiene would benefit a locality, more particularly where the small farmers are not within reach of veterinary aid, but lectures and demonstrations upon subjects such as Hernia, Abscess formation, Disease of bones, etc., delivered in districts where veterinary surgeons are within 4 or 5 miles radius, are to my mind a burden on the rates, no benefit to the farmers, and only laughed at by the medical profession.

The amalgamation of our various societies is practically accomplished, and to my mind it is a step in the right direction, as the veterinary profession can now present a more solid front for or against all things affecting its interest. In the branches of all professions and trades the tendency of to-day is strongly towards co-operation, and to my mind there never was a time in the history of our profession when there was a greater need for absolute unity; I ask you to look back and see what the veterinary profession has done in eradicating contagious diseases from Great Britain, and more particularly from the shores of Ireland; could this have been done without the co-operation of the local veterinary inspector reporting to the proper authorities and immediately isolating the infected area.

Concealment and not having the courage to face a calamity undermines that which all civilised nations are now striving after, namely, health stability: more precious than financial or commercial stability. Should there be a weak spot in the sanitary organisation of any country, the policy of to-day is to strengthen it, and it is the only policy compatible with commercial progress. Concealment, whether in individuals or communities, leads invariably to the disease smouldering and spreading, and to an ultimate conflagration; then the final results are infinitely worse than the expenditure of the little firmness and moral courage necessary at the outset. This has been the invariable experience of larger communities when face to face with threatened epidemics. Boldly notify the first case, and let the sanitary organisation be so armed that implicit reliance can be placed upon it, and in all probability the first case notified will also be the last one. How can these words be acted upon without the co-operation of all officials connected therewith.

In relation to State and municipal hygiene—especially the latter—and in order to guard the interests of the public health, co-operation between the veterinary and medical officer is essential for the necessity of placing the inspection of both meat and milk on an organised basis, and under properly trained experts.

I trust some of our members will come forward and assist both by papers for discussion, specimens and notes on cases, etc., and above all by a regular attendance at our meetings.

A hearty vote of thanks to the President for his interesting address was ably proposed by Mr. J. B. Dunlop, seconded by Mr. J. Ewing Johnson, and passed by acclamation.

The PRESIDENT thanked the members for the hearty manner in which they had received his address.

HEREDITY IN RELATION TO DISEASE.

J. B. DUNLOP, M.R.C.V.S., Dublin.

Mr. President and Gentleman,—It affords me much pleasure to visit the progressive City of Belfast once more, to observe so many new buildings, to see so many old familiar faces, and to meet the sons of those whom I once knew so well. I feel grateful to you for having called a special meeting to hear my last paper read, and I may say it was the first paper I have ever read on veterinary medicine.

In the natural course, I ought to have read the last paper before the Veterinary Medical Association of Ireland, of which I have the honour to be a member and a vice-president. Being one of the oldest members of the profession, I had hoped at one time that I might have the privilege of discussing this burning question at the school where I graduated, but somehow an opportunity did not present itself.

Thirty years ago, glanders broke out amongst a few hundred horses belonging to the Belfast Street Tramways Co. At that time the mallein test was not in use, and I prevented the spread of the disease by the use of exclusive buckets and other means similar to those now advised for the prevention of tuberculosis.

An article of mine on a pure milk supply, and the eradication of tuberculosis appeared in a Dublin paper about three years ago, but unreasoning fashion was against me.

As practical men and men of science, I consider it to be our duty to lead public opininion and not to follow it, and always to keep an open mind where the public interest and safety are concerned.

At the last meeting some of your members invited me to read a paper on rheumatism. I intended complying with the request, but seeing that no criticisms on my previous paper had been offered in the veterinary press, and feeling that the matter was one of supreme national importance, I thought it my duty to bring the subject before you once more, but in a less restricted sense.

Ever since man was able to reason, every person must have noticed that children, as a rule, resemble their parents in many particulars, and that they often bear a striking resemblance to one or more of their grandparents; it may be in their stature, form, gait, voice, teeth, hair, skin, eyes, or in one hundred and one other characteristics. The transmissibility of inborn characters of structure and function, both of body and mind, normal and abnormal, has been proved all along the line.

Medical men say there is no doubt that a tendency to gout, rheumatism, cerebral hæmorrhage, heart disease, neurotic ailments, ataxy, asthma, hæmophilia, and obesity are capable of being transmitted.

Smith (Veterinary Physiology) says: "Of the influence of heredity in disease there is no possibility of doubt." Robinson's investigations have shown that in horses, roaring, sidebone, shivering, and a tendency to ruptured blood vessels follow the law of Mendelian inheritance.

Although the fact of heredity has been recognised in all ages, there is still some difference of opinion as to the mode of transmission. The Darwin theory of the origin of species was based on the fact that there are variations or differences between parent and offspring, and in the struggle for existence the fittest survive. It was laid down that the differences between parent and immediate offspring were very slight, and that changes, however great, were slow and gradual. Some have held that the differences between species arose suddenly and were the result of great variations, or what are known as sports.

The application of Mendelian principles to animals is as yet limited, and can only apply to the crossing of breeds of decidedly opposite characters.

Few people will contend that performance and capacity are not transmissible. In Scotland there has been a marked improvement in the milking qualities of Ayrshire cattle, which has been attained by breeding only from the deepest milkers. "It has been possible, by proper mating, to transfer the power of yielding milk of high quality from animals possessing that power to any number of animals, or to any breed which did not possess it." The Ayrshire owe their beautiful horns to a drop of West Highland blood. It is well known that the egg-laying capacity of poultry is transmissible, the proper and regular feeding, cleanliness, comfort, freedom from dampness, draughts, etc., are, of course, powerful factors. I have known good breeders to select from a brood of chickens, by form alone, what they considered would be the best layers, and I must ssay they were fairly successful, but this may have been a coincidence.

Breeders are, as a rule, well informed, and many of them highly educated. They usually are supplied with abundance of statistics, and each in his own line is familiar with pedigrees and performances. They can tell which classes of animals are prepotent. The success of the practical breeder has been marvellous. The improvement he has effected in the domesticated animals has been truly wonderful. He has moulded the pigeon into all sorts of fantastic forms, and has actually been able to make it tumble in the air.

At a meeting of a Veterinary Medical Association a gentleman asked, "What is the relationship of heredity to disease?" and said, "Before attempting to make an answer to the question it was necessary to decide exactly what is meant by disease." No doubt there are cases of functional albuminuria which may be intermittent or orthostatic, and these symptoms need not prevent the adolescent from being accepted for life assurance at ordinary rates. Cases are on record where a gentleman, his son, and grandson, on reaching similar ages, expired suddenly from functional heart disease, and on post-mortem no lesions were discovered. The same type of pulse may be normal in one individual and abnormal in another. These peculiarities are, no doubt, inherited. Their existence neither hinders scientific men from considering "heredity in relation to disease" nor prevent the breeder improving his stock, and they offer no valid excuse for continuing to breed from diseased herds.

There seems little doubt that the great majority of nervous disorders have their root in some germinal defect, and are therefore in various degrees transmissible.

Perhaps one of the most fascinating and important of studies is the one appertaining to the more obscure inherited functions of the skin in relation to disease and as affecting the various internal organs.

There seems no very secure reason for believing that acquired characters are transmissible, but possibly they may in some instances be transmitted. When the body of a parent suffers from the effects of starvation, or from malnutrition, or becomes soaked with a poison or a toxin, such as alcohol, the germ cells as well as the body cells may be impaired, and consequently the offspring may suffer. The progeny of the young and immature are said to be less vigorous than the progeny of the mature, and there are grounds for believing that long-continued effects of climate may give rise to a germinal variation that may become part of the inheritance of a race. It is said that the dwellers in large cities would die out in three generations but for the importation of fresh blood from rural districts.

There are three or four recognised modes of inheritance, such as the particulate, the blended, and the inclusive, but these modes in reality seem to overlap one another, and their study may tend to lead to some con-

fusion of thought. I shall, therefore, lay before you a few well-known facts which I hope will make this matter quite clear.

It has been said that exceptional parents do not necessarily produce exceptional offspring, because of an innate tendency towards the mean. Although it has been shown that there is a tendency to return to the mean, it should be understood that this refers to the offspring of exceptional parents, and this is most definite where there is a considerable difference between the two parents.

There is another side to this question, and it is always well to look at both sides. Limiting our ancestry, say, to 500 years—15 generations—and supposing there were no linking of ancestral lines, each person now living could claim to be the descendant of 32,767 ancestors, and notwithstanding all this mixing and intermixing we still have with us the philosopher and the idiot, the genius and the imbecile, the tall and the short, the brunette and the blonde, the alcoholic and the moderate, the consumptive and the sound, the rheumatic and the agile, and "typhoid Mary."

One would naturally think that the marriage of different types of people (the usual custom) would eventually procure a perfect blend, but we know that on the whole there is no tendency to return to the mean, and therefore we must believe that there is some prevailing force or law (Mendelism) in operation tending to prevent blending of the race; otherwise, there would be a general sameness all over, and one person wonld be indistinguishable from another.

A number of inherited characters may remain latent or partially suppressed for one or two generations, and only develop, or re-appear, or become intensified in individuals when both parents possess similar characters, either latent or apparent. This may be the reason why individual peculiarities are maintained and not completely blended or effaced.

If two opposite types, say the tall and the short, were not to intermarry, obviously the people would soon be sharply divided into two types, the very tall, and the very short. The medium would gradually be merged in the extremes. These facts, I think, show that the general mode of inheritance is compound particulate with a tendency to variations, otherwise exceptional individuals would not be perpetuated.

I knew a gentleman of strong build and of exceptional intelligence who married a lady of slight build that suffered agony after partaking of anything containing an egg. They had a son and a daughter. The son bore a striking resemblance to the mother, but had the father's stomach. The daughter was like the father, but inherited the mother's stomach. This is, I think, a typical example of mixed particulate, but not blended inheritance.

Some people would define a hereditary disease as one which is present at birth—congenital—and they would exclude all diseases due to infection. The exact definition is unimportant so long as animals exceptionally prone to a serious disease are not used for breeding purposes.

The contitutional predisposition to some bacterial diseases is certainly hereditary, and all these diseases are not necessarily congenital. Some authorities are of opinion that rheumatism is infectious, and it is generally considered by the faculty to be due to a specific microbe—the diplococcus of Poygnton and Payne. Medical men believe that some families are more prone to this affection than others.

A congenital disease inherited from the mother is not necessarily hereditary. The offspring may be affected with syphilis before birth, but infection is not inheritance.

A learned gentleman said recently, "It was because of a lack of sufficient and reliable statistics that 'genetics' (scientific breeding) could speak with so little assurance regarding many points of heredity as it affected domestic animals. Farm stock, moreover, offered difficulties inasmuch as there were so few sharply defined characters and such a diversity of latent strains."

I have quoted the gentleman's exact words as reported, but I fail to comprehend their meaning. Every pure breed has sharply defined characters of its own, and cannot have much diversity of latent strains, otherwise no pedigree stock would breed true,

The breeder sees no difficulty in the existence of latent strains. He knows that every individual—man or animal—is possessed of some latent characters without which there could be no such thing as atavism.

The same gentleman is reported to have said that "there could be little question that breeders and others attach undue and dangerous importance to individual cases." I fail to see the danger of testing and selecting disease-resisting animals for breeding purposes. An awful responsibility rests on those in authority if they are by neglect ushering thousands of children prematurely into their graves. I do not think it is fair to charge breeders with attaching undue importance to individual cases.

For sixty years I have noticed exhibition animals gradually changing their coats, colours, and shapes, like a lady of fashion. The changes of the former, however, were more real and not quite so sudden as that of the latter

We owe all our statistics to individual breeders, and we owe them an everlasting debt of gratitude for all they have done in the past. So far the professors of genetics have failed to give any information of the slightest value to the breeder. Up to the present they have added nothing to the volume of statistics we already possess.

No practical breeder or educated person attaches undue importance to individual cases; he only views each case as additional evidence of the universal existence of well-known laws of inheritance.

A practical breeder would not for a moment entertain the idea of acquiring knowingly a bull having an abnormal character. He knows the character is certain to appear in some of the progeny. He cannot determine how many of the offspring will inherit the character. That can only be determined approximately by long experience. The bacteriologist cannot assist him. The microscope has failed to reveal any differences between man and animals in their earliest stages of development. Life is a mystery, and function is stilled concealed in structure.

Invaluable work is being done in the laboratory day by day, and chemical, physical, and biological problems of extraordinary difficulty are being solved, but that does not assist us in formulating correct theories regarding "heredity in relation to disease."

A few zealous, well-meaning bacteriologists, in responsible positions, with comparatively little outside experience, took upon themselves the duty of instructing experienced and skilled physicians, as well as veterinary surgeons of great experience. Unfortunately they succeeded in biassing the minds of the young and inexperienced, and the followers of fashion, and the result has been nothing short of a calamity to the human family.

The following four paragraphs are taken from Munro's Manual of Medicine, University Series, third edition, 1911. It is a standard work and fairly represents the opinions of the faculty:—

"Of late years it has been fashionable to minimise the importance of inherited predisposition; and cases that seem to exemplify it have been explained on the hypothesis of a very long incubation period extending possibly over years. Such a theory, however, is not sufficient to account for the facts. No doubt the predisposition in the case of phthisis is sometimes partly attributable to the form of the chest; but even in the

case of scrofula there is an extraordinary tendency on the part of some families to suffer. Similar facts are well known in connection with the exanthemata. The seed is essential, but the soil is scarcely less important."

"As with phthisis so with tuberculosis of lymphatic glands; there may be a very marked family tendency even among those in excellent social circumstances."

"Lichen Scrofulosum.—Though the patient is seldom suffering at the time from tuberculosis of the lungs or other viscera, there is generally a family history pointing to this tendency, and not uncommonly the patient himself shows signs of scrofula."

"Nathan Raw considers that the bovine type of bacillus is the cause of tuberculosis of bones, joints, lymph glands, urinary organs, meninges, and skin, while the human type is the cause of tuberculosis of the lungs and larynx; and he urges the use of tuberculin from the bovine source for diseases caused by the human type of bacillus" and *vice versa*.

When two undoubted cases of consumption occur in near relatives of an applicant for life insurance this is an absolute bar to acceptance, even though the applicant may appear healthy.

The American investigators, Park and Crumwood, as recently reported, found that six to ten per cent. of all the deaths from tuberculosis occurring in man were caused by the bovine type of bacillus.

Notwithstanding all these unvarnished facts, now and heretofore adduced, despite the overwhelming mass of evidence produced by practising physicians—(doctors make a practice of inquiring into the family history of their patients)—in face of a universal law of heredity making itself manifest wherever we go, we still find people denying, without data, the hereditary nature of one disease, and that the most common, the most serious, and most manifestly hereditary of all diseases. We all want pure milk. The children demand pure raw milk; they are perishing in large numbers for the want of it.

The best and most reliable authorities estimate 18½ as the average percentage of reactors in Ireland.

It is a curious thing how little the public mind being killed so long as it is done gradually and by a regular process. If we could ascertain the annual death rate in the United Kingdom due to the bovine type of bacilli alone, it would be incomparably more appalling than the greatest marine disaster ever heard of.

Now, let us look calmly at the question of heredity in relation to the most serious disease affecting man and animals, and consider what is being done. At agricultural shows horses are carefully examined for roaring, spavin, and other affections believed to be hereditary, and no prize is awarded to any unsound horse; but no cow or bull is tested by the veterinary surgeon for tuberculosis. The shrewd foreigner comes to our shores and pays an enhanced price for pedigree cattle, every one of which must stand the tuberculin test, and unless we take means at once to put a stop to the propagation of diseased animals at home, the consumer will, in the near future, have no choice but to give preference to foreign meat.

Dairy cattle should be tested, and the few that would react should be prepared for the butcher and carefully examined (as they are at present) at the abattoir. When a carcase looks sound, with the exception of a local lesion, the affected portion should be removed and the butcher compensated. When the lesions are not localised the whole carcase should be condemned and compensation awarded; but only in cases where the animal had been apparently sound before being slaughtered. The general practice in dairies is to allow the few affected cows to remain in contact with the many healthy for a length of time (the cows being kept in an unnatural state, getting no exercise, the life's blood being drained out of them, and often not allowed sufficient fresh air, they are in a fit state to receive any infection to which they may be exposed), and the result is so many become affected that the country cannot afford to do justice to the respectable butcher.

There does not appear to be any danger of tuberculosis being transmitted to human beings through the medium of cooked meat; even in the centre of a large joint the temperature is reckoned to be raised to 185° F., which is ample to kill all tubercle bacilli. It may be argued that raw meat juice is sometimes given to the sick, but the nurse would not be justified in buying anything but the best, and that from a respectable butcher. Moreover, the specific bacilli are not to be found in clean muscle. They are found only in cancellous tissue or cavities. In any case, the public are well protected by our system of inspection as carried out at our abattoirs.

It seems an extraordinary thing that there is a noxious weeds Act, but no noxious animals Act. There is no law to prohibit the use for public service of diseased or inferior animals. If we continue to breed from diseased animals, the result will be disease.

The Agricultural Department is expending about £13,000 per annum in "growing trees," but so far as I am aware it is not spending one penny towards establishing disease-resisting breeds of cattle required for the general production of pure raw milk, which is a necessity for the "growing" of healthy children.

I am not aware that the Department is doing anything in order to eradicate or diminish tuberculosis in poultry, except advising cleanliness and ventilation. Needless to say, the poultry and egg industry is an important one for Ireland.

There are other infectious animal diseases which do not come within the scope of this paper, and which would require the combined counsel of the wise and experienced, but they are quite insignificant when compared with tuberculosis.

Referring now to one aspect only of the most serious of all hereditary diseases transmissible to man, let us neglect for the present the great monetary loss to the nation. Thousands of children are being ushered into their graves by the consumption of impure milk, not to speak of the consequential sufferings and deformities of child and adult. People are being encouraged to marry into consumptive families, and the danger is that the young and the thoughtless may be induced to embark on a sea of lifelong trouble. The leading members of the medical profession are speaking out with no uncertain sound. Our profession has always been to the front in advocating and initiating effective measure for the eradication of animal diseases. Practical veterinary surgeons agitated for years before the Government would take steps to stamp out pleuro-pneumonia, a disease not transmissible to man. How much more is it our duty to urge the importance of taking effective measures for the eradication of a disease which is not only causing a great monetary loss to the nation, but is imperilling the lives of many human beings.

Women as a rule are shrewd in many ways. They do not like to see their children or friends marrying into consumptive families. I honestly believe if we had women in Parliament they would not allow our authorities to rest on their oars. They would not fold their arms and listen to perishing children calling for pure raw milk. The heart of Dublin Castle is sound, and most sympathetic towards every good movement.

The Veterinary Department for efficiency is second to no other similar organisation, and every official has experience and commonsense enough to know that it is wrong to breed from diseased animals, and I am sure they are not only willing to assist but to take the lead in this grand movement.

The Agricultural Department of Ireland, from its inception up to the present, has been second to no other like institution, and it is to be hoped it will lead in this

crusade against an animal scourge which, like the poor, is always with us.

The question of the eradication of tuberculosis is an urgent one. The problem to be solved is a simple one. All is plain sailing, children are perishing. Practical men must take hold of the oars and go the rescue. The sea is calm, the night is not dark. There is no danger of being swamped. You may be laughed at by a diminishing number of inexperienced followers of fashion, who do not take the trouble to observe for themselves; that is all.

Whatsoever you sow, that shall you also reap. Sow diseased cattle and you shall reap diseased cattle, and impure milk with all its dire results.

We must keep this matter before the public, and continually urge the necessity of reducing the risks of infection to a minimum, of improving hygienic conditions, and, above all, the necessity of breeding only from cattle that have stood the tuberculin test after due exposure to the risks of infection.

I know this paper is not well prepared, but surely the subject is one of sufficient importance to merit a discussion. I rather like to hear the opinions of those who differ from me. It sets one a-thinking. If there were no differences of opinion there would be no progress.

Mr. JORDAN congratulated Mr. Dunlop on his most excellent paper, and suggested that, as it contained so much that might be considered controversial the discussion should be adjourned until our next meeting, when he hoped Mr. Dunlop would again honour them with his presence.

This was proposed by Mr. J. J. Ross, seconded by Mr. James Gregg, and passed unanimously.

Mr. SMITH proposed a hearty vote of thanks to Mr. Dunlop for his kindness in coming to the North to treat the members of the Association to a paper on such an interesting subject, which was seconded by Mr. Thompson.

Mr. DUNLOP suitably replied, and there being no further business the meeting closed.

J. A. JORDAN, Hon. Sec.

Foot-and-Mouth Disease.

OUTBREAK IN THE LAKE DISTRICT.

The following was issued to the daily press (*but not to us*) on Monday:—

"Foot-and-mouth disease was reported yesterday (Sunday) to exist at Belmont, near Penrith, Cumberland. One of the veterinary inspectors of the Board was at once instructed to visit the suspected premises, which remained under strict police supervision pending his arrival. He reported this morning that he found 16 cows affected with the disease. There are 49 cattle and 92 sheep in all on the farm. The Board have given instructions for the immediate slaughter of all these animals, and have issued an order prohibiting the movement of all animals over a wide area around the affected premises.

"Local authorities throughout Great Britain have been warned that the disease has again appeared in this country."

DISEASES OF ANIMALS ACTS 1894 TO 1911, SUMMARY OF RETURNS.

Period.	Anthrax.				Foot-and-Mouth Disease.		Glanders † (including Farcy)		Parasitic Mange.		Sheep Scab.	Swine Fever.	
	Outbreaks		Animals										
	Con-firm'd	Re-ported	Con-firm'd	Re-ported	Out-breaks	Ani-mals.	Out-breaks	Ani-mals.	Out-breaks	Ani-mals.	Out-breaks	Out-breaks.	Slaughtered. *
GT. BRITAIN. Week ended June 22	9		11				1	3	35	92		97	1163
Corresponding week in 1911	13		15				3	10				64	664
Corresponding week in 1910		20		21			6	13			2	38	290
Corresponding week in 1909		19		20			13	43			1	53	432
Total for 25 weeks, 1912	484		541				81	167	2060	4628	162	1734	22315
Corresponding period in 1911	459		572		1	18	103	271			302	1280	14050
Corresponding period in 1910		781		941			174	479			314	638	6256
Corresponding period in 1909		699		934			291	1134			455	869	7837

† Counties affected, animals attacked: London 2, Surrey 1.

Board of Agriculture and Fisheries, June 25, 1912.

IRELAND. Week ended June 22	...	...	...	...	...	...	Outbreaks 2	2	5	43
Corresponding Week in 1911 ...	...	...	...	...	...	...	2	...	1	1
Corresponding Week in 1910 ...	...	...	...	...	...	...	...	...	...	38
Corresponding Week in 1909 ...	...	...	...	...	...	...	1	2	6	91
Total for 25 weeks, 1912 ...	2	2	...	...	...	...	43	256	133	1245
Corresponding period in 1911 ...	5	6	...	...	2	3	43	240	53	911
Corresponding period in 1910 ...	4	7	...	...	1	2	36	332	52	1277
Corresponding period in 1909 ...	3	3	...	...	...	...	47	280	43	697

Department of Agriculture and Technical Instruction for Ireland, (Veterinary Branch), Dublin, June 24, 1912

NOTE.—The figures for the Current Year are approximate only. * As Diseased or Exposed to Infection

PARLIAMENTARY.

FOOT-AND-MOUTH DISEASE OUTBREAK NEAR PENRITH.

In the House of Commons, on Monday, June 24.

Mr. RUNCIMAN, replying to Sir Harry Verney, said: One of the veterinary inspectors of the Board proceeded to Penrith last night, and has this morning reported by telegram that the animals are affected with typical symptoms of foot-and-mouth disease. There are 49 cattle and 92 sheep on the farm, and 16 milking cows are affected. Two cows had been recently moved on to the farm, and one cow was sold about three weeks ago. On receiving the report of suspected foot-and-mouth disease the police imposed restrictions on the movement not only of the animals on the farm itself, but also as regards those on two adjoining farms, pending further veterinary examination. They also arranged with the proprietors of the Penrith Auction Mart that no cattle or sheep from the district where the suspected outbreak of disease had been reported should be allowed to pass through their auction mart on Monday.

The Determination of Sex.

Dr. Andrew S. McNeil, of Liverpool, has sent the following account of the opinion entertained by an experienced breeder of Shire horses. He writes:—

"Three or four years ago I attended the manager of a large Shire stud farm for a serious accident. During his convalescence we often inspected the horses together, and it was on one of these occasions that he proposed the following axiom—namely, that if a stallion were put to, say, six mares in one day, the first two mares would throw colts; numbers three and four mares would throw colts probably, if the stallion were fresh, and had not been "used" for some days, but if he were aged or stale through "use," then they would probably be fillies; numbers five and six mares (especially number six), he "could gamble would throw fillies, if they threw anything" (that is, if they became pregnant at all). This man did not believe the mare had anything at all to do with deciding the sex of the foal. He believed that fillies were conceived when there were "few seeds" in the sire's sperm—for example, at the end of a day "in use." I may mention that he was a very intelligent man, and, like his father before him, had been all his life among Shire stud horses; among other noted horses, he was in charge of the Shire "Hareld" when he won the championship.

The point would appear to be easily capable of proof, at any rate; but until his ideas are proved or disproved, I think (emanating as they do from a man who has made of this subject a life study) they should not be lightly put aside. If his observations are correct, it would appear that when there are vigorous mature spermatozoa in the semen, one of these in the struggle for existence amalgamates with the ovum to the exclusion of any weaker immature ones, and so begets a male. When, however, there are only immature forms in the semen a female is produced.—*British Medical Journal.*

[About a dozen years ago, in the course of one of the perennial discussions on the subject, in, I think, the pages of *The North British Agriculturist*, where a farmer was maintaining that he was able to control sex by regulating the feeding of the sire and dam, Prof. Cossar Ewart, F.Z.S., who was working then on hybridisation with his zebras, pointed out that spermatozoon and ovum has each a "life" *per se*—a period of development and a period of decadence. He suggested that a difference in the "age" of the respective elements at at the time of their union might well account for several of the phenomena of generation. The conclusions of the breeder quoted above are along the same line.]

James Fraser, F.R.C.V.S.

Mr. James Fraser, an Ex-President of the Royal College of Veterinary Surgeons, died at Sheffield on June 19th from angina pectoris. He had retired from work owing to the state of his health, but will be remembered in connection with St. Albans, where he practised many years. Mr. Fraser started his professional career at Newbury, Berks. Then he went to Bromley, Kent, and from there to St. Albans. He was nominated a Vice-President in 1891, elected a member of Council in 1892, and was made President in 1899. His age was 65 years.

Mr. Fraser was a Canadian, and graduated from Edinburgh in 1869 taking the Fellowship in 1881. During the South African War he displayed his patriotism by serving the Government in Canada in the collection of horses.

On the Council Mr. Fraser played a prominent part in all of the controversial subjects which occupied attention during his 20 years of office. He was a man of a serious philosophical turn of mind, thinking things out and forming his convictions firmly. Once convinced he was not easily converted to other view. Although not aggressive in addressing the Council Mr. Fraser was a remarkably fluent speaker, and at the opening of the Royal Dick Veterinary College performed a *tour de force*, speaking without notes, never at a loss for a word, and yet producing a well ordered, logical and clearly expressed address.

Mr. Fraser was interred at Fulwood Cemetery, Sheffield, and Mr. Joseph Abson, attended as a representative of the profession over which the deceased was once President. Mr. Fraser leaves a widow and three children.

ARMY VETERINARY SERVICE.

The Annual Dinner was held at the Hotel Metropole, on Friday, June 21st. There were present:—

Major-Generals K. Pringle, C.B., D.S.O.; F. Smith, C.B., C.M.G.; H. Thomson, C.B.

Vet.-Colonel Sir F. Duck, K.C.B.

Colonels L. Blenkinsop, D.S.O.; E. H. Hazelton, C. E. Nuthall, A. E. Queripel, W. B. Walters, C.B.

Lieut.-Colonels J. Moore, J. Reilly, R. Rowe, G. Taylor

Majors W. O. Dawson, W. B. Edwards, A. England, E. E. Martin, C. Rose, H. T. Sawyer, W. D. Smith, A. G. Todd, G. M. Williams, F. W. Wilson.

Captains E. P. Argyle, J. A. Bosley, T. E. Burridge, G. Conder, W. J. Dale, H. E. Gibbs, P. J. Harris, A. L. Horner, H. Kirby, K. M. L. McKenzie, R. W. Mellard, H. S. Mosley, J. S. Nimmo, W. W. R. Neale, A. Olver, F. C. O'Rorke, W. H. Simpson, J. Steevenson, F. W. Thomas, A. J. Thompson, E. J. Wadley, E. C. Webb, H. M. Williams.

Messrs. D'A. S. Beck. B. R. Body, T. E. Campey, G. A. Kelly, W. St. J. MacArtney, E Nicholl, H. Stephenson.

About a Gamekeeper and a Bishop.

The gamekeeper is usually a puzzled man with many things to worry him. There was one who was in the habit of looking after parties of shots when they came for sport on his rich master's preserves. He knew the ropes tolerably well. He understood that a duke was to be addressed as "Your Grace," and a common baron—I have known some horribly common barons—as "My Lord." One day a Bishop arrived, and this proved exceedingly disconcerting. A bird rose and the prelate seemed a trifle confused. "Fire, fire, you silly old fool!" exclaimed the gamekeeper excitedly—"go on! 'It 'im! 'It im! Dot 'im on the nut, your Oliness!"

To quote his own words, "And then I knew I 'ad addressed him wrong, by the way he looked at me."—*Horse and Hound.*

Personal.

ANDERSON—ROWE.—At Wellington, Somerset, on June 14th, by Rev. G. W. Joyce, William Anderson, M.R.C.V.S., Pittenween, Fife, to Clara, younger daughter of W. P. Rowe.

Mr. W. F. HOUSTON, M.R.C.V.S., was one of the judges of the Light Horse Class at the Stirling Agricultural Society's Show on Friday, 14th inst.

R. J. MCMORDIE, Esq., M.A., M.P., (Lord Mayor of Belfast) was the guest of the members of the North of Ireland Veterinary Medical Association at the Annual Dinner of the Royal College of Veterinary Surgeons in Dublin.

Prof. Lanfranchi, Director of the Medical Clinic of the Higher School of Veterinary Surgery of Parma, lately contracted trypanosomiasis from a dog on which he was investigating the results of infection with the *Trypanosoma brucei*. The diagnosis was confirmed by Professors Bertarelli and Castellani and by the Pasteur Institute of Paris. *Il Policlinico* says: "This is the first known case of transmission to man of the parasite which causes such ravages among cattle in South Africa."

We are pleased to be able to add that Prof. Lanfranchi is said to be on the way to recovery.—*B. M. J.*

Capt. W. C. B. REVILL, M.R.C.V.S., Inspector of the Board of Agriculture for the Continental traffic in decrepit horses, has been awarded the gold medal of the Royal Antwerp Society for the Prevention of Cruelty to Animals, "for his untiring efforts to improve the conditions of this trade, which have had such excellent results."

The best thanks of the whole Clydesdale world are due to Mr. ROBERT BEYDON, Seaham Harbour, for sending such an excellent representative as his Clydesdale stallion, Robin Adair, to lead the procession at the International Horse Show at Olympia.

OBITUARY.

JAMES FRASER, F.R.C.V.S., late St. Albans.
Graduated, Edin: April, 1869: Fellow, March, 1881.

J. T. POTTER CARTER, M.R.C.V.S., Malvern, Worc.
Lond: May, 1895.

Mr. E. Brassey, held an inquest at Chester Town Hall, on Monday 24th inst, concerning the death of Joseph Thos. Potter Carter, aged 39, veterinary surgeon, who resided at Malvern, and who was found dead on the bank of the River Dee, at a place known locally as Billy Gamon's Rough, on Saturday morning.

Mr. J. S. Potter Carter, deceased's brother, of Middlesborough, said he had not seen deceased for eight years, he having been mostly at sea during that time. He had heard that deceased had been drinking heavily lately.

Mr. W. J. R. Baker, of Malvern, said he had known deceased for the past seven or eight years. Deceased had had financial troubles, and made a composition to his creditors about six weeks ago of 10/- in the £. His sister had guaranteed that, and it had been paid. Deceased never showed signs of lunacy, but he was very erratic and eccentric. For the last three months he had been more or less under the influence of drink.

Dr. Harrison, police surgeon, who stated that death was due to the division of a blood vessel on the right side of the neck, added that the wound was inflicted by an "artist," the man having selected a vital spot. The wound was undoubtedly inflicted by the man himself.

Cyril Farren, a boy residing in Linenhall Street, deposed to finding the body near the water when fishing.

P.C. Price deposed that a blood-stained pocket-knife was found near the body. There was no money in deceased's pockets. On an envelope were written the words, "Bag and dressing case at station," and there was a left luggage ticket in his pocket.

The jury returned a verdict of "Suicide whilst temporarily insane.—*The Liverpool Courier.*

GOVERNMENT PUBLICATIONS.—Diseases of Animals Acts (Ireland), Report for 1911, 8d. Foot-and-Mouth Disease, Committee's Evidence, 3s. 2d.

CORRESPONDENCE.

WIND SUCKING.

DEAR SIR,

After reading in the *The Veterinary Record* the interesting thesis delivered by Lt. Colonel J. Moore, at the Veterinary Medical Association of Ireland on "Crib-biting and Windsucking." I should deem it a great favour if you would allow me space for a few remarks on this subject.

Windsucking and Crib-biting can be defined as a psycho-pathological condition of the horse, characterised by a distinct physical action resulting from a mental impression associated with the early period of the animal's life. In severe cases it is invariably accompanied with digestive derangement.

It is well known to psychologists that in the human subject a complex in the adult can invariably be traced back by psycho-analysis to a mental impression attained in the days of infancy.

I am strongly of an opinion that the vice of windsucking in the adult horse is *not* acquired by "imitation" but that the seed of the mischief is sown when the animal is a foal.

Yet, it is possible the sense of hearing or seeing an affected horse windsucking, in a neurotic horse may awaken and stimulate the mental impresssion that it attained as a foal and thus, linking up the present with the past, the habit may be acquired.

This primary mental impression may be attained either as Mr. Patrick states by the foal hearing its mother or other horses windsucking, or the impression may be associated with the physiological act of sucking.

I think one is justified in saying the horse is naturally a neurotic animal, the balance of mind, the power of control are lacking; watch him in a carriage accident, or cast in his stall; his only thoughts are to free himself, irrespective of the pain he is enduring by his struggles. A runaway horse imagines the only danger is behind him, from which he must escape; some horses working in the ranks will become debilitated through the excitement of being in company, others will fret when leaving the ranks. I have known horses show great signs of nervousness when taken out on an open plain, the unaccustomed surroundings and the vastness have struck terror into them. We all know the foolish acrobatic display that sometimes occurs when a piece of paper is lying in the road.

Naturally some horses are more affected than others, and it is in these one must expect a psycho-pathological condition especially in horses descended from parents with a neurotic temperament.

It is this neurotic temperament—this obscure pathological condition of the mind in the parent—which, handed down to the animal's progeny, has established the theory that windsucking is hereditary. It is not the actual habit of windsucking that is hereditary—it is the mental disorder.

The illustration given by Mr. McKenny with reference to the stallion "Pliny" and his offspring is of great psychological interest.

I knew a weedy thoroughored Waler which was a windsucker of the very worst type; he performed the habit on every possible occasion either in the stable or at work, a momentary halt at work was instantly followed by windsucking.

The horse had a very neurotic temperament—very nervous, never carried any condition, and suffered from indigestion—an animal that could be classified as a typical weed, and I am certain where there is a deficiency in physical development in the horse it is invariably accompanied with a deficiency of mental development.

Lately, in making observations of this affection, it is interesting to relate that in a cavalry brigade 66·6 per cent. of the windsuckers are mares. I think there is a psychopathological condition which is very closely associated with the sexual organs, and I even go further in saying that the pleasure obtained in windsucking is a form of mental masturbation.

From the above it would seem that the removal of the sexual organs has a controlling effect, but I do not wish to imply that the loss of function destroys the desire. I think mares are naturally more neurotic than geldings. The neurosis undoubtedly aggravated by the artificial life led by the animals in civilisation compared to their wild state.

In Arab entires masturbation is very common, and I have detected in Arab geldings conditions of expression and appearance very similar to the entire performing the vice, and although the physical function was lost there is every reason to believe that mental masturbation was taking place.

There is no doubt idleness and artificial existence experienced by the equine play a very important factor in the aggravation of this disease.

Troop horses before being issued to the units generally spend their lives in the open pastures, but after joining the units before a blank wall, and during their long monotonous hours the mental picture must flash across their minds of the days of freedom—especially in the neurotic subject, and it is during this imaginary picture the act of sucking as a foal associated with circumstances of delight, the primary mental impression is stimulated, the act is initiated, which giving mental pleasure becomes a habit as we know it.

I do not think indigestion is a cause of the trouble, but that windsucking is the cause of indigestion, not so much because of the air swallowed, as windsucking being a mental affection, the indigestion is a form of nervous dyspepsia.

Treatment.—All treatment allays only the symptoms, there is always a chance of recurrence. Mechanical implements prevent the air being swallowed, but this does not cure the seat of trouble.

I think the treatment adopted is one of purely hygienic principles—work, open air, and a careful diet. As the state of the body becomes healthier so will the mind.

Prof. Mettam's remarks that the air is swallowed with saliva is interesting, because in India the disease is known as Hawá peena ("to drink air").—Yours truly,

H. S. Mosley, Capt. A.V.C.

Aldershot, June 26th.

PEPTONE POISONING.

Sir,

Referring to Mr. Chambers' interesting note in last week's *Record*, this, as far as the present writer is aware, is the first published record of the observance of toxic phenomena in the course of the immunisation of cattle against East Coast Fever by Theiler's method—a method in which one understands an emulsion of spleen and lymph glands (containing "Koch's bodies") is mixed with peptone and injected intravenously into the animal it is intended to immunise—the object of the peptone being to excite a leucocytosis.

Mr. Chambers says: "We cannot get anaphalaxis with bacterial toxin, so the injection used in the process of immunising cattle against East Coast Fever may be excluded."

As a matter of fact certain present day authorities regard the reaction which follows the inoculation of tuberculin into a tuberculous subject as being in the nature of a manifestation of super-sensitiveness (anaphylaxis) exhibited by the infected animal to the toxin in question (tuberculin)—the tissues of the animal having been sensitised to the latter in the course of the infection. The same view is also held with regard to the mallein reaction in glandered subjects, and the conjunctival reaction in typhoid—the infected animals being super-sensitive to the toxic products of the B. mallei (mallein) and B. typhosus respectively.

True, there are certain objections to the acceptance of the reactions referred to as typical manifestations of anaphylaxis, but at all events it was noticed long ago that anaphylactic phenomena occasionally followed the inoculation, after a definite interval, of a second and minute dose of diphtheria and tetano-toxin (*not* serum in this case be it noted) into guinea pigs—the second dose being but a fraction of the minimal lethal dose for these animals.

We hold, therefore, that Mr. Chambers' assertion that "we cannot get anaphylaxis with bacterial toxin" is incorrect, and would substitute for it the following statement by one well-known authority on the subject:—

"The substances which have been found to have the property of calling forth this condition (*i.e.* super-sensitiveness or anaphylaxis) are of various kinds, including bacteria and their toxins, animal poisons, and a great many foreign proteins, *e.g.* those of serum, milk, egg albumin, etc., and it is to be noted that they belong to the group of substances which can act as antigens. 'Probably' no body of known chemical constitution develops super-sensitiveness, and, just as tolerance, say to drugs, is to be distinguished from immunity, so accumulative action is to be distinguished from super-sensitiveness."—Yours, etc.,

"Anaphylactin."

MEDICAL MEN GIVING TESTIMONIALS TO THE UTILITY OF QUACK VETERINARY MEDICINES.

If anybody will take the trouble to peruse the advertisement columns of the canine fancy press they will without a shadow of doubt come across some containing testimonials given by medical men. Is this permissible?

I understand the medical profession has *practically* stamped out quackery within its own body, and is desirous of putting down quackery from without. Also with this latter object in view it is sending representatives, like the veterinary profession, to lay its views and to give evidence before the Committee inquiring into patent, etc., medicines.

I am firmly of opinion the Royal College of Veterinary Surgeons should communicate with the General Medical Council and lay a complaint against those members of the medical profession who do not do unto others as they would wish others to do to them.

To support my statement I enclose one or two pages of advertisements, which have now been appearing for some years.

"Justice."

VETERINARY SURGEONS AND SHOWS.

Should veterinary surgeons be allowed to act at dog, cattle and horse shows where stalls for the sale of quack medicines and instruments are exposed for sale? I think decidedly not. But have the Council of the R.C.V.S. sufficient moral courage to enforce the disciplinary byelaws against those members of the profession who should act in future at shows where quack medicines, etc., are vended. *Vis unita fortior* is our motto, and why not act up to it? We have the power, why not use it against such quackery? To preach against one form of quackery and to aid and abet the worse form by acting at such shows is certainly illogical to my simple mind. Let not the profession be like a flock of silly sheep but act as a powerful bull with great courage.

"Action, not Idle Words."

Veterinary Societies Addresses.

National Veterinary Benevolent & Mutual Defence Society.

Pres: Mr. W. A. Taylor, F.R.C.V.S., Brick-st, Manchester

Treas: Mr. J. B. Wolstenholme, F.R.C.V.S., Quay-street, Manchester

Hon. Sec: Mr. G. H. Locke, M.R.C.V.S. Grosvenor Street, Oxford-st., Manchester

Victoria Veterinary Benevolent Fund.

Pres. W. Freeman Barlett, Esq. Fountain Court, Temple, E.C.

Hon. Sec. & Treas: Mr. W. Shipley, F.R.C.V.S. South Town, Great Yarmouth.

Veterinary Societies—Addresses

ASSOCIATION OF VETERINARY OFFICERS OF HEALTH
Pres: Mr. J. G. Reynard, M.R.C.V.S., Perth
Hon, Sec. & Treas. Mr. A. M. Trotter, M.R.C.V.S., Moore Street, Abattoir, Glasgow

BORDER COUNTIES V.M.S.
Pres: Mr. J. W. Hewson, M.R.C.V.S., Wigton
Hon. Sec. (pro tem.): Mr. F. W. Garnett, M.R.C.V.S., Dalegarth, Windermere
Meetings, Second Friday of Feb., June, and October

BRITISH COLUMBIA V.M.A.
Pres: Dr. Gibbons, M.R.C.V.S., Vancouver,
Hon. Pres: Dr. Hamilton, M.R.C.V.S., Victoria.
Sec., Treas., Registrar. Dr. T. Jagger, V.S., Vancouver.

CAPE OF GOOD HOPE V.M.S.
Pres. Mr. J. D. Borthwick, M.R.C.V.S., Cape Town
Hon. Sec. & Treas. Mr. R. W. Paine, F.R.C.V.S.

CENTRAL V.S.
Pres. Mr. R. J. Foreman, M.R.C.V.S., High Cross, Tottenham
Hon. Sec: Mr. H. A. MacCormack, M.R.C.V.S., 122 St. George's Avenue, Tufnell Park, N.
Meetings, First Thursday in each month, except August and September, 10 Red Lion Square, Holborn, at 7 p.m.

CENTRAL CANADA V.A.
Hon. Sec: Mr. A. E, James, Ottawa

CENTRAL V.A. OF IRELAND.
Pres: Mr. J. Holland, M.R.C.V.S., Athy
Hon. Sec. Mr. E. C. Winter. F.R.C.V.S., Queen st., Limerick
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Meetings, 1st Thursday in April, June, Sept., & Dec.

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Meetings, Second Thursday Feb., June, and October

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END OF VOLUME XXIV.

A VETERINARY HISTORY

OF THE

WAR IN SOUTH AFRICA 1899-1902.

PART I.

INTRODUCTION.

SOUTH AFRICA has long been regarded as the graveyard of reputations, and amongst those consigned to its scrap heap during the South African war was that of the veterinary service of the army. It has been condemned almost unheard, it has had no Parliamentary representative either to champion its cause or ventilate the real facts of the case, and the Royal Commission on the war was perhaps too absorbed in dealing with major questions to pay much attention to a small department. It is a significant fact that only one veterinary officer was called before the Commission—the Director General of the Veterinary Service of the War Office, and he, of course, had taken no part in the campaign, though he had intimate knowledge of the country, and had seen previous warfare in it. Not a single veterinary officer was called who had served in the war, and the Commission in this way failed to probe to the bottom the cause of the failure of the veterinary service, or elicit from expert eye-witnesses the actual factors producing the appalling loss of animal life. It is not conceivable that an enquiry into the working of any other branch of the army could have been conducted by calling one witness, who had not been present, when scores were available who had served in the campaign.

No report of the veterinary operations during the war has been published, for death was busy in the higher ranks. Of the three responsible senior officers who were in the Field when the war began only one saw it end, and he died shortly afterwards, before his report could be furnished. With these officers, especially Colonel Matthews, who was Principal Veterinary Officer of the Army, died much of the experience gained during the campaign, or rather there died with them that knowledge of the inner working, difficulties and troubles, which can only be known to the officer charged with general administration. Colonel Matthews was present from the first to the last day of the campaign, he endured the privations of the siege of Ladysmith, he was familiar with the country before the war, was present in nearly every zone of operations, and so far as was humanly possible made himself personally acquainted with what was occurring in the immense area of hostilities. Had he and other officers been examined by the Royal Commission the difficulties of working an unorganized department in the field would have been emphasised.

As there has been no official veterinary history of the war, and no examination by the Royal Commission of men who were on the spot, the veterinary service has been condemned almost unheard. It is a matter for regret that so many years have elapsed since the war ended before it has been possible to present a history of the veterinary operations, but the delay may not have been without its advantages; history can only be written when prejudice and party strife have disappeared and the atmosphere been restored to normal; it can only be written when time is given for a thorough examination of the facts in the light of subsequent knowledge, and from this point of view it is, perhaps, not an unmixed evil that so long a time has elapsed before it has been found possible to place the facts in their proper setting, and assign to them their due importance. Let it, however, be made perfectly clear that what has to be recorded is not an official history of the war; that can never now be written. Nor can it be a closely detailed account; all it can claim to be is a narrative of events, related as far as possible in sequence, built up from published records, the immense general literature of the war, from observations made at the time, and from the interchange of personal experience among those who took part in the campaign.

The exact plan on which to relate the history of operations extending over such an immense area has been a cause of anxiety. The general principle has been to build up the structure piece by piece as it actually was built; this is relatively simple for the first few weeks of the war, but the complexity later on is considerable. Almost from the outset the war was prosecuted from four separate bases, each leading by a distinct line towards the enemy's country, but before the four bases were reached the force had to be mobilized and transported some thousands of miles by sea. As it left its base and worked into the interior the lines connecting it with the sea not only increased in length but widened, so that the record at any given period of hostilities has to comprise the events occurring at points considerable distances apart. For example, when we are considering the events occurring at Modder River on the West in

November, 1899, it must be remembered that 250 miles away to the East, separated by an impassable mountain barrier, Natal was also engaged in operations which daily led to sickness, inefficiency and death, and the same was happening at every intervening point where contact with the enemy had occurred. This front of 250 miles was then at its minimum; it widened enormously when the Transvaal was entered, but even when at its least width it is evident that some effort of imagination is required to form a mental picture of what is occurring on any given date along this broad front, on the four roads which lead to it, and in the bases from which these roads started. When later on fighting was occurring simultaneously over the four cardinal points of a sub-continent, the difficulties of presenting a consecutive narrative will be considerable.

The story is best told by periods of the year; in this way though the walls of the edifice may appear to be irregularly raised instead of growing evenly all round, yet the advantages of such a scheme are obvious. Where the interest of the narrative would suffer by being suddenly ended, the broad policy of time periods will be departed from.

PREPARATIONS FOR WAR.

With all armies peace is the period which should be utilized in making preparations for war, and in keeping the machine up to date, Nevertheless this elementary lesson has had to be learned by more than one nation in Europe, for the effect of a long peace is to deaden feelings of apprehension: it produces the same effect on an army that constant watching has on an individual who is looking out for something which does not happen—it grows careless. Such an army having inexperience of the practice of war lives on its past reputation, believing that it can suddenly rise to any emergency, a feeling fostered by the unwise reductions which for financial reasons invariably accompany a long peace. Neither a nation nor an individual can stand still, there must be movement either forwards or backwards. If financial considerations impair the efficiency of an army a long bill in the future is being piled up, for, after all, efficient peace conditions are infinitely cheaper than war, and an efficient army is always less costly than a paralysing war indemnity. But there is an aspect of the question of preparedness for war which is not fully appreciated; there are branches of the army whose duties during peace are so insignificant that they are barely recognised, but which assume in a moment alarming magnitude on the outbreak of hostilities. Such for example is the Remount Service, which from buying 3,000 horses a year has suddenly to expand to obtain 5,000 a day for ten consecutive days for the Regular Army alone. Nor is this condition limited to the non-combatant branches; there are portions of the fighting arm which cannot exist in peace for there is no duty for them to perform. For example, the enormous expenditure of ammunition in modern warfare has necessitated a special transport for its conveyance and supply. These Ammunition Columns consist of a large number of men and horses, and to maintain them in peace would be folly and wicked extravagance, yet the moment of mobilization brings them into being. Officers, men and horses have then to be found at the moment when every officer, man and horse is required to join existing units. Artillery Ammunition Columns can only be created by utilizing the trained personnel of Artillery units, and the places of these officers and men have to be filled from the Reserve. The effect of this may be gathered, from a statement made in the Official History of the War in South Africa* that on mobilization 50% of the men in a certain battery of artillery had never seen the gun fired they were about to use in war, and half of these had never even previously seen the gun itself! The two illustrations given show the evils on mobilization resulting from conditions which cannot be remedied during peace by any reasonable system of expenditure. They show the effect of hasty organization even when the contingency has been previously calculated upon and known to be inevitable. If this is so, the difficulties of constructing during time of war a service which has previously never before been recognised as requisite, and for which not one ounce of stores and not a single man exists, may be left to the imagination. To this point we draw special attention, it is the burden this history has to record. No subordinate veterinary service existed prior to the campaign in South Africa; the care of the sick was left to arrangements to be evolved during war, for which the Remount Department, already unable to cope with its own duties, was to be responsible. The sick and healthy were to be brought under one administration, controlled by officers endowed with authority, but who, with few exceptions, were without training or experience of this highly specialized work. Is it any wonder that the sick and healthy became mixed, amid chaotic arrangements, confusing orders, and an entire absence of system, which the veterinary service was powerless to remedy through having no authority? That matters improved with experience is undoubted; order was evolved out of chaos, in some instances, as will be related in their proper place, to a degree astonishing to those who witnessed the early efforts. All such improvements were directly attributable, as will be shown, to the gradual extension of veterinary authority and the passing of the sick from the care of those who knew nothing about them, into the hands of those who had made it their life's work and training. The time, however, has not yet arrived for any examination of these facts;† irreparable harm had been done before the system was changed, and the point is only alluded to here as evidence, if any were required, of the impossibility of organising during war a system for which no provision is made during peace and which on mobilization cannot be called into existence by any magic wand.

The question we have here to consider is—what were the actual preparations for war which existed

* Volume I, p. 12.

† The Remount Service will be fully examined later.

on the declaration of hostilities? It is obvious that the veterinary preparations depend upon the military organisations, and the Report of the Royal Commission is an invaluable and authentic source of information on this point.‡ From the Report we learn that no scheme for mobilising the army existed until 1886, and it took four years to evolve. By the fifth year regulations for mobilization were issued, not on the basis of what was *needed* but on what was *available*. Early in 1899 the unsettled condition of affairs in South Africa attracted attention, and regulations for the mobilization of a Field Force for that country were drawn up; it is a matter of history how well they worked when actually tested. During the four years occupied in evolving the scheme for mobilizing the army, the veterinary service would appear to have been lost sight of. Other branches had advanced with the times; the medical service, for example, had many years previously been brought under one central control, and its entire powers concentrated on the work in hand instead of being frittered away on individual efforts. But it had never been generally recognised that the scheme necessary for dealing with sickness and injury among men in war was, in principle, that which was necessary for meeting casualties among animals. Some so called sick depots were framed on paper and placed under the Remount Service, who were thereby charged with all the duties of providing for the removal and care of the sick, while the veterinary officer's function was limited to treatment. Of trained subordinate staff he had none, and for unskilled attendants on the sick he was entirely dependent on the assistance given him by the Remount officer. Such were the mobilization arrangements for the Veterinary Service in October 1899.

An army requires men, horses, and equipment on mobilization; the latter must be in store, not only sufficient to meet the demands of the Reserve being called out, but also to replace wear and tear during the campaign. We know, from the Report of the Royal Commission, the perilous conditions of affairs in the matter of equipment for the fighting troops, and that the declaration of war found the army in such a position as regards arms and ammunition, that an examination of this question will facilitate an understanding of the deficiency of veterinary equipment on mobilization and the entire absence of a reserve.

On 15th December, 1899, two months after the declaration of war, the Director General of Ordnance at the War Office brought to the "earnest and immediate attention" of the Secretary of State a situation as regards armaments and reserve of stores 'full of peril to the Empire.' *R.C. Rep. p.*279. He pointed out on the above date that there were only spare guns for two batteries of artillery, that the whole reserve of ammunition had long since been absorbed by South Africa. Guns from the Plymouth defences had had to be sent to South Africa; howitzer ammunition for Malta could not be sent as it did not exist. There were only 500 sets of harness and 1000 sets of saddlery in reserve when the war began, these were now all used up. There were no infantry accoutrements, only 80 swords, and the reserves on hand of picketing pegs, ropes, mallets, etc., would not supply one-fiftieth of the demands from South Africa. The report goes on to say that the authorised reserve of horse shoes was 52,000 sets, and no mule shoes, whereas 35,000 sets of horse shoes and 40,000 sets of mule shoes were being sent monthly to Africa, necessitating purchasing in Germany, Sweden, and the United States in order to keep pace with the demand. The reserve of clothing was inadequate to meet peace requirements let alone war. This remarkable memorandum concludes by saying, "we are attempting to maintain the largest Empire the world has ever seen with armaments and reserves that would be insufficient for a third-class military power."

Lord Wolseley, nearly four years prior to the above report, told the Secretary of State that in things military we had been living from hand to mouth like an insolvent trader; living by shifts and devices, catching at any expedient that would carry us over the difficulty of the moment, but always in a standing condition of inability to fully meet our military obligations.—*R.C. Rep. p.215.* "It is surely not an unreasonable demand," the minute concludes, "to ask that this vicious system may be abandoned for good; as we now know with exactitude what it is that under ordinary circumstances our regular army is expected to accomplish, it may be made equal to accomplish it."

Under examination by the Commission, *R.C. Evid. A.8788*, his Lordship said, "Looking back on the whole summer of 1899, I may say I was constantly asking for the expenditure of public money upon services which would be necessary in the event of war, and I may again say that war at that time seemed to me absolutely inevitable. I could see no way out of it, as far as I was able to judge, but of course I was not in the secret of the Cabinet. As a soldier it seemed to me madness to go on as we were from week to week, not making preparations for an eventuality which to me seemed a certainty. I could get no money for the purchase of clothing, equipment, transport, or any military stores, and without money, of course, I could do nothing in the way of preparing stores for the mobilization of an Army for Field Service."

It may at first sight appear that the question of insufficient ammunition, obsolete guns, or a deplorable drought of military stores, has little bearing on the question of the preparedness of the veterinary service. As a matter of fact the features brought out in the evidence quoted are the crux of the ques-

‡ The Royal Commission on the War in South Africa consists of four large volumes. One is the Report, two are volumes containing the Evidence of Witnesses, and one consists of Appendices to the Evidence. Our references to these will be many, and are indicated as follows: *R.C. Rep. R.C. Evid., R.C. App.* The evidence will be referred to by the number of the question '*Q*,' or the answer '*A*.'

tion. When matters of vital military interest are indefinitely shelved, when the stock of military stores is permitted to touch a point which exhausts them entirely in a few short weeks, it is evident that the relatively insignificant demands of a small department would receive no consideration. It is no matter for surprise that the year 1899 found the Army Veterinary Department with little else than obsolete equipment, and a trifling reserve quite insufficient for the purposes of mobilisation, let alone of carrying on the war.

It was fortunate that at the head of the Veterinary Service at that time was an officer who regarded with dismay. the antiquated veterinary equipment with which his service was provided, who took early measures for introducing appliances of a more modern kind, and lost no opportunity of urging on the authorities the necessity of bringing the veterinary equipment up to date.

The evidence given before the Royal Commission by the Director-General of the Veterinary Department, Colonel Duck, C.B,, on the matter of equipment, may best be given in the officer's own words (*R.C. Evid.*, A. 3201).

"When I was Principal Veterinary Officer in India, I was called upon by the Quartermaster-General to propose a mobilization scheme, to prepare the Veterinary Department for war, to bring up all the equipment to date, to establish hospitals, mobile field chests, and so on, and we had the advantage of a practical trial of that system in the Chitral campaign where it was very well reported on. When I came home (as D.G.A.V.D.) I made it my business to enquire into the mobilization arrangements at home, and to my mind they were woefully deficient. We only had at Woolwich at that time in the Reserve, (I am now speaking from memory) about 30 pairs of Veterinary Field panniers, and about a score or so of old-fashioned field chests which were quite out of date and too heavy and cumbersome. I considered the Veterinary Field Panniers to be very useful at depots but certainly not for active field work, because although they were up to date in medical equipment, they were too heavy or too fragile to be knocked about, I thought the best thing I could do was to work at once upon the Indian system, and try to introduce the mobile veterinary Field Chest to begin with. That was in 1897. In 1898 we got the money for the necessary trials, obtained Field Chests from India, and had some made from these at home, bringing them up to date. We wanted to reduce the weight as much as possible, the idea being to produce a chest weighing 84lbs. or half a mule load, so that the chests could be carried either on mules or in waggons. These chests were tried at home, and in the Soudan Campaign of 1898, and on receipt of the reports they were finally adopted, and we were getting them made when the war broke out."

As a matter of fact, as we are informed by the Assistant Under Secretary of State, (*R.C. Evid.*, *A.* 6121) it was not until September 1899, that sanction was obtained for expenditure to meet the requisitions of the various departments, which began as early as June or July, and such a delay in the opinion of the witness ought not to have occurred; but it was a Cabinet question, and no one else could decide it, though, as the witness adds, from the standpoint of the efficiency of the force which is to go into the field, it is a very fatal thing.

Among other matters to be considered in the preparations made for this war are those dealing with the state of its personnel. We are told by the Director-General (*R.C. Evid. A.* 3266) that at no time was he instructed to make preparations for war, that his information of what was occurring was drawn from the newspapers, and his previous knowledge of Africa, while the question of whether his department was ready for war was never put to him. He adds, (*R.C. Evid.*, *A.* 3267) that the home peace establishment of veterinary officers before the war was 63, and the establishment was five officers short. When war multiplies the peace establishment of horses by four or five, it is evident that more veterinary officers are at once required. As matters stood the 63 peace establishment was insufficient, but as the D.G. states, (*A.*3248) he did not see any prospect of getting an increase. Further, there was great discontent both in the Department and in the profession (*A.* 3162). The conditions of service for the officers had been improved and certain disabilities removed, but the principal point which the authorities had been requested to grant, viz. definite non-compound military rank, had been refused (*A.* 3177). This was resented by the profession and the Department, (*A.* 3162), and there were whisperings of a boycott.

From the evidence of this witness it is clear that the conditions which had to be faced were those of a dissatisfied department, an entire absence of a reserve of officers, and only a small civil profession on which to draw for recruits. All these factors had been foreseen by the Director-General before the war broke out, (*R.C. App.* p. 100) and he especially addressed the authorities on the question of betterment, expressing his concern at the dearth and quality of candidates, and proposing improvements in conditions which, if sanctioned, would remove the difficulties of finding officers. No action was taken on this representation, and no improvements were granted until the war was nearly over.

We now know the feelings of apprehension regarding the insufficiency of officers which existed in the mind of the head of the department; we also know (*R.C. Evid.*, *A.* 3253) he considered that at this time he should have had 50 more officers than his establishment provided. In the light of events which occurred before the declaration of hostilities, it is clear that even this number would not have sufficed for the needs of the Remount Department and mobilized units, but it would have been an enormous gain in efficiency,

The Remount Service made an early call for veterinary assistance; normally but three veterinary officers belonged to this branch, and it was evident that this was insufficient.

As early as June seven veterinary officers went to Spain, Italy, South America, and New Orleans, with the purchasing Remount officers. In August two more went to Australia on Remount duty, so that out of the scanty number of officers on the veterinary establishment no less than 10 were employed with the Remount Department. The war had not lasted a fortnight when it became impossible to supply more veterinary officers for Remount duty, and retired officers were recalled for this service. In his evidence before the Commission (*A.* 3225), the Director-General states, that "when the war broke out there was at once a grab made for officers of my department by the Remount Department. They wanted all the officers they could possibly get hold of. I of course was responsible for my Department, and insisted upon having a sufficient staff to work in Africa." In reply to a question as to the relationship between the Veterinary and Remount Department, the D G. replied (*A.* 3224) that the relations between the two services were very unsatisfactory, and that they had been at variance on many points nearly throughout the war. Later he explained (*A.* 3239) that the constant variance with the Remount authorities was not in order to create difficulties, but that the difficulties which arose should in future be provided against by regulation. When it is remembered that the Remount Department before war was declared had already drawn on the Veterinary Department to one-sixth of its strength for purely Remount requirements, the feeling of apprehension expressed by the D.G. A.V.D., for the veterinary service of the army about to take the field, may be readily understood. It was the first cause of friction between the two services, which, as stated above, existed throughout the war.

We have now considered the question of the veterinary service before the war began, have seen that it was short of officers, short of supplies, in possession of obsolete equipment, modern equipment being under consideration, and that an early and apprehensive drain on the limited staff was necessitated by Remount activity. Before proceeding beyond this point it is necessary to have a clear understanding of the veterinary organization existing with the troops. To appreciate this fully we must go back 20 years before the war, and study the system then in force. This was known as the 'Regimental,' from the fact that veterinary officers belonged to regiments, and were responsible to no one but the Commanding Officer. Some who were fortunate put in all their service at home, those who fell to regiments abroad remained abroad, perhaps for years, but the big blot was that no other branch of the service, and no other regiment, had a call on the services of a regimental officer, so that on a campaign amid the most urgent work with transport or other branches, a veterinary officer could not attend to anything but the animals of the regiment of which he wore the uniform. Apart from the waste of material which thus occurred, there was the undeniable fact that though the regimental veterinary system of dealing with the sick was ample for peace requirements, on service it at once broke down, unless every regiment or battery was to become converted into a field veterinary hospital. The logical legislation was a general list of non-regimental veterinary officers available for any unit, under one central control, all wearing the same uniform, and equally sharing home and foreign service, and such was formed in 1879. The necessary complement of this was the creation of veterinary hospitals on a non-regimental basis. This was not done, so that regiments continued to look after their sick horses under a system which years before was shown to be impossible for the care of men on service, and applies with equal force to animals. All who had seen or studied war knew how impossible the regimental care of the sick was. Men trained as gunners, drivers, or cavalrymen are intended on service for fighting purposes, and not for the care of sick and lame horses. The policy of suggesting fighting soldiers for these duties was remarkable for its short-sightedness. The country had paid for these men to be trained in the art of war, and instead of utilising them for this purpose a proportion was to be turned over to look after sick animals, of which they knew nothing, at a time when the troops were loudly crying out for their services for fighting purposes.

The Veterinary Service when converted into a Department, as above described, only went one-third of the way towards an effective organisation. The officers existed but, as we have seen, no hospitals or subordinate personnel were provided: this was the state of affairs which existed for nearly a quarter of a century, and was in operation at the date of the Declaration of War.

We have entered somewhat fully into these matters as their comprehension explains the absence of proper veterinary organisation in South Africa. It is essential at the outset to understand the disabilities under which the Veterinary Service laboured in this campaign, with no other than a hybrid regimental organisation, each commanding officer having been trained to hang on to his sick animals as long as possible, each possessing a partly trained subordinate regimental staff for the care of the sick, (when it was not otherwise engaged in fighting and shoeing horses) over whom the veterinary officer had no control, and not a member of which the Commanding Officer could consistently lend to another regiment or branch of the service.

It is impossible to conceive a state of affairs which more readily lends itself to collapse in war, a collapse which the Veterinary Service for years had foreseen must occur, and which it was impotent to avert. There are many who think organisation for war can be begun on the declaration of hostilities, and that in this way the expense is avoided of maintaining units which in peace can be conveniently replaced by a makeshift arrangement. Such a policy is suicidal, for none can enter on war, be they fighting or non-combatant branches, without a previous training for the duties for which they are intended. It is during peace that the material is

created which in war is exhausted and destroyed. Far better for a country to make up its mind to have nothing to do with hostilities, than to enter on them with make-shift arrangements composed of elements lacking both cohesion and training. The enthusiasm and patriotism of such a body will never compensate for the absence of that on which its sole utility depends. Its title may indicate that it is intended for veterinary, medical, or fighting purposes; it matters little what it is called. From a military point of view it is worthless until it is trained, and modern war will not admit of this occurring during its course nor wait until it is effected.

While preparations for war were being made in England, South Africa had not been idle. The future Principal Veterinary Officer of the Field Force, Colonel Matthews, was serving in that country, and he was empowered to make local purchases of medicines, dressings, etc., in anticipation of the raising of Local Forces. A Remount Department had also been opened near Cape Town, while the existing one in Natal became more active as purchases of animals were made. These purchases, under the orders of the Cabinet at home, were kept at a very low figure, and mainly consisted of transport animals, with a few hundred cobs for the Mounted Infantry then being raised on the western border.

The bulk of the troops were in Natal, and the reinforcements sent from India before hostilities began were directed to that Colony. In consequence of this the Principal Veterinary Officer in South Africa was also on the Natal side, though the General Officer Commanding South Africa was in Cape Town. There can be no doubt that from a professional point of view this officer was well placed in Natal, but from an administrative point of view he should have been with the General in Cape Town. The consequence of his not being there was, as we shall see, that he was later on shut up in Ladysmith at a time when his local knowledge and administrative abilities were most required. He had been reinforced in veterinary officers both from India and to a small extent from home, and at this time he was relatively well staffed, while his shortage of stores was being supplemented by local purchases.

South Africa had seen the gathering storm, and in the colony of Natal, with a wisdom in advance of that shewn in the mother country, a "Veterinary Volunteer Corps" had been formed for use with the local forces. The government of Natal wisely put its creation in the hands of its proposer, the Principal Veterinary Surgeon of the Colony, and Major Watkins-Pitchford, as he then became, was placed in command, the whole of the officers of his department volunteering to enrol themselves. Owing to the devastation caused by rinderpest in 1897, the number of officers in the civil department had been augmented, and some nine or ten professional men with a good local knowledge of the country and its diseases were thus available. Under Major Watkins-Pitchford, who had already some years' service in the volunteer force, they were subsequently posted for duty to the various units so far as their numbers were available, and did excellent service until the local forces were disbanded. This body and the names of its officers will be referred to later; the question is dealt with here as it falls within the subject under consideration, i.e. the arrangements made before hostilities. The other colony of South Africa, the Cape, was also in possession of a Civil Veterinary Service under the control of the late Dr. Hutcheon. The political condition of the Cape did not permit of the services of these officers being at first utilized for military duty; further, the Cape was not at this time in danger of being overrun; Natal, on the other hand, soon had her neck under the foot of the invader, and the complete disorganisation of the civil duties of the veterinary department enabled the absence of its officers to be less felt than would have been the case in the Cape, where the civil machinery was working as usual.*

The conditions existing both at home and in South Africa prior to the declaration of hostilities have now been examined, and a clear appreciation of these will explain much which is to follow.

THE THEATRE OF WAR.

No account of the operations in South Africa would be capable of being understood without some knowledge of the theatre of war. We are accustomed from habit to think of a country of such a size that it may readily be traversed from east to west or north to south in a few hours, and consequently utterly fail to grasp the immense area of the scene of operations unless the distances be referred to well known standards. The ordinary map of Africa shows Cape Town and Durban as relatively close together; it requires some little effort to realize they are four or five days apart by sea, the distance, in fact, in a straight line, from London to Naples. Similarly the distance from Cape Town to its nearest port, Port Elizabeth, is that of from London to Munich; while from Cape Town to the third port of the Colony, East London, the distance is that of from London to Venice. By courtesy these places are called ports, as a matter of fact the coast line of Africa is rarely indented; Port Elizabeth is an open roadsted, and a disastrous position in bad weather. East London is, or was, little better, owing to the bar at the mouth of the river, which only certain vessels could cross. Ships at Durban had also to cross a bar, and those at Cape Town, if not within the limited accommodation of

* It is impossible to overstate the valuable co-operation of the Cape Civil Veterinary Service during the war. Dr. Hutcheon and his staff placed at the disposal of their military *confrère* the accumulated experience of many years, and without their advice and help the veterinary difficulties would have been far greater. Subsequently when cattle plague broke out, it was Dr. Hutcheon's advice which was acted upon, the military veterinary service being only too glad to be guided by such experienced hands. If other branches had been equally willing to accept, or even listen to, local advice, there would have been fewer costly mistakes.

the breakwater, were far safer in the open sea in bad weather. The bearing of this on the landing of animals is obvious. The distances on the coast line are also worth remembering in connection with the landing of remounts. It requires a first class organization for a man sitting in London to provide for the single item of the efficient inspection and isolation of newly landed remounts, at places as far off as Munich, Venice, and Naples, with ships arriving almost daily, and sometimes two or three on the same day.

The low lying, rarely indented, coast line of South Africa, on which the surf rolls eternally, rises more or less gradually to the interior, forming the table land or highlands. This arrangement may be compared to an inverted saucer. The table land has a mean altitude of from 3,000 to 6,000 feet above the sea, exclusive of mountain ranges, and lies at varying distances from the coast. The rise from coast to table land may be gradual, in some places sudden; at one point where the rail enters Cape Colony, there is a rise of 2,400 feet in 27 miles; on another line, far away to the East of the Colony, there is a rise of 1,000 feet in 15 miles. It must not be understood that the table land is a flat unbroken surface; in the Cape it consists of terraces with intervening flats, known as the Karroo. The Southern Karroo is 200 miles long from W. to E., and averages 30 miles from N. to S. The great Karroo is 350 miles from W. to E., and from 40 to 80 miles from N. to S. These immense sandy plains are almost unbroken, though the neighbouring terrace is indicated on the sky line by the sharply outlined hills and sugar-loaf shaped peaks peculiar to South Africa. For months in the year the Karroo is a barren, desolate, waterless, sun-baked waste of sand and boulder; no language can fitly describe the indefinable disgust at its first acquaintance, yet the dust laden hot air is pure, dry, and health giving. A scanty summer rainfall of only a few inches converts, in the course of a few hours, this melancholy waste of 100,000 square miles, into a fairyland of green bush and desert flowers.*

Excepting in the Western Province of Cape Colony, the rainfall all over South Africa is from October to March, the heaviest being during the summer months of December, January, and February. The amount varies from a few inches in the Karroo to generally under 30 inches as an average in the most favoured places; it is larger, however, in Natal. During the rains the grass springs up in the most remarkable manner. Immense grass lands existed in the actual area of the early operations in Cape Colony, and were consequently considered available for forage purposes for the troops. The forage question will come before us very shortly and its serious aspect be fully considered. The point is referred to here in connection with soil and rainfall.

The chief anxiety in South Africa is water. A rainless period lasting for several months leaves every rivulet and river, excepting the largest, as simply a dry watercourse. Attempts to store water have been made here and there with good results, but the South African farmer is easily satisfied with the scanty store he can save with a minimum of labour. During a storm the water courses become raging torrents, impossible to cross, and rising many feet in a very short time. The whole of this water, with much of the soil, is carried down to the sea. The erosion of the land is thus considerable, and one may come without warning on a chasm with vertical sides which would conceal an Army. It was this formation which enabled General De Wet to ambuscade our troops at Sannah's Post. Everywhere throughout South Africa the cry is for water, even the direction of the lines of rail have had to be governed by the facility for obtaining it. The anxiety may, therefore, be easily understood which existed as to the supply during extensive military operations, when thousands of men and animals were moving through a restricted area. This anxiety lasted throughout the whole campaign; there was severe suffering to the animals from shortness of water supply, and heavy loss of body condition; only in the vicinity of large dams, or of those few rivers which never ran dry, was it certain that the water supply would be unrestricted and ample. Later in the campaign, when the Army operated from standing camps, wells were sunk and the water supply enormously improved; but while the columns were absent on "trek" they continued to suffer.

The table land of the Cape consists, then, of karroo or grass, with few rivers, and dry watercourses. Curious sugar-loaf hills suddenly arise from a plain, or there are chains of hills running for miles, row behind row, all so exactly alike in the general configuration that there is nothing by which the untrained eye can distinguish them. Across the Orange River the features change to long rolling illimitable grass plains. Hour after hour one may march over them and never seem to reach the top of the billow. The water supply is just as bad and precarious as in the Cape. The table land, of a mean altitude of 5,000 feet, is, of course, very hot in the summer, but the heat is not seriously felt as the air is dry; the nights are cool, even in the summer, and bitterly cold in the winter. A South African day in mid-winter in these regions may be described as intensely cold at night, depending on the altitude, but the moment the sun is up the body thaws, and before noon the genial heat of a northern summer is experienced, to be shortly replaced by cold the moment the sun sinks. Such changes of temperature are trying for under-fed and over-worked

* Growing on this land is a bush known as the Karroo, a fragrant smelling plant, which furnishes a coarse but nutritious food to sheep and such animals as are used to Karroo Veldt, but a hopeless fodder to the stranger. The English horse looked at the bush with disgust when turned out to graze; from his point of view he might as well have been offered a birch broom. He neither understood its smell nor liked the taste, and his truly conservative instinct when turned out on Karroo land to graze, led him to look, as he felt, that the whole proceeding was a solemn mockery.

animals, and it is necessary to bear in mind, in thinking of the subject of food and feeding and condition, how enormously these are influenced by the questions of water supply, alternations of daily temperature, and thunderstorms of appalling violence.

A glance at the map shows a chain of mountains running down the backbone of South Africa and dividing it into two very unequal portions. That to the west is Cape Colony and Free State, while to the east lies Natal and Zululand. The Drakensberg is the name given to this immense, rugged, impassable range, which can only be traversed at a few known defiles. These mountains cut off Natal from its neighbours on the west almost as completely as if a sea intervened. They are bold in outline, fantastic in their beauty, grand in their massiveness, and they give to this Eastern country its special and distinctive climate.

The warm air currents arising from the Indian Ocean impinge on the Eastern face of the Drakensberg, and are deflected up and down Natal, carrying with them heat and moisture, and converting this colony into the garden of South Africa, where vegetation grows with tropical luxuriance, especially on the coast line. The country lies lower than its neighbours to the west, and is consequently hotter. In its general features it consists of hills and valleys, one behind the other. In the northern part the hills become mountains, and link up with the Drakensberg, and the climate here becomes cooler and more bracing. Speaking broadly, there is one continuous rise in the ground from Durban to the corner of Natal where it meets the Free State and Transvaal. Grass grows over all this area, acquiring a height much greater than in Cape Colony and the Free State. Where Natal meets the Transvaal the features of the country at once change. The bewildering intricacy of the hills of Natal suddenly ceases as the Transvaal table-land is reached.

There is nothing the new comer in South Africa misses more than trees. Speaking very broadly there are no trees away from the coast; almost every African township and farm contains the imported blue gum and weeping willow, but generally the country is treeless, though scrub and bush are found in the water ways. The absence of trees causes a dearth of firewood, wood is as scarce as water and almost as necessary. When, during the campaign, it could barely be obtained for cooking purposes, it is clear that there was none to spare for the purpose of attempting to cremate the thousands of dead animals lying on the veldt, a suggestion more than once made in the papers and in Parliament as a preventive against the spread of enteric.

One more feature remains to be touched upon, and that is the character of the ground over which the force worked. The "going" throughout South Africa is, generally speaking, good in the sense that it is not hard. The short grassy surface gives it the smoothness of satin to the touch, and polished the shoes on the horses feet until they looked like silver. There are many exceptions to this, especially in the neighbourhood of hills, large or small, where, owing to denudation, one suddenly comes upon nothing but rock, boulder, or shale, which tear off shoes and damage the feet. The general rule is, however, as above stated, and the influence this had on shoeing will be dealt with in its proper place. Though the "going" was relatively soft, it was hard enough where the grass was spare or absent, and extremely treacherous from the innumerable holes in the ground caused by ant bears and rodents. No imported horse was safe from these traps; he blundered, and had no conception how to help himself when in a difficult position. The horse of the country, on the other hand, who had been reared on, and grazed over such places from his birth, had from habit and experience acquired the utmost dexterity in crossing rocky formation and loose stones, over which he travelled as nimbly as a goat, and if only given his head would safely negotiate ground perforated by ant bears and other burrowing animals. Of roads there were none, the Army either followed the usual tracks or made its own. These tracks in wet weather, when churned by thousands of animals and waggons, can be imagined, they defy description. The drifts over water courses and rivers were always the worst part of the road in all seasons. They took hours to cross with double and treble teams, and must have been responsible for the destruction of thousands of transport animals.

This bird's-eye view of the country in which military operations are about to commence, will be a help in understanding many of the matters yet to be discussed.

On to the highland of Cape Colony, and halfway up the long mountainous road which runs from Durban to the Transvaal border, men, horses, guns, ammunition, food, and stores had all to be carried by rail. Unfortunately marching was out of the question, so that one valuable means of the horses becoming fit before severe work was demanded was not available. In Cape Colony three roads to the front existed. That from Cape Town was very long. The distance from London to Caithness (502 miles) had to be covered before De Aar was reached, the junction from which it was possible in a few hours to obtain touch with the enemy. The second route was from Port Elizabeth to Naauwport, 311 miles, the distance from London to Berwick; the third channel was from East London to Stormberg, 221 miles, or roughly the distance from London to York. In Natal the line of rail was employed to convey troops to the Tugela, it was only a short run of less than 100 miles, but uphill the whole way. We shall have to keep before us the mental picture of the traffic along these four arteries, which lengthened with every advance, by so doing increased the difficulties of supplies of all kinds, including horses, and doubled the inefficiency occurring to the latter as the result of long journeys by rail. We must not picture the four lines as simultaneously running at high pressure. Natal was working at fever heat when the Cape was relatively

slack; the swing of the pendulum would then produce intense activity in the Cape, and give a respite to Natal. Nor were all the lines capable of being worked; that from East London to the frontier was so largely in the hands of the enemy that it was idle for months.

THE OUTBREAK OF WAR.

On October 9th, 1899, war became inevitable, and the despatch of a Force from home was decided upon. At this time there existed in South Africa a small normal garrison, which had just been supplemented by certain precautionary re-inforcements sent from India and Home, a total of 2,864 horses, of which 2,253 came from India. The bulk of these troops were in Natal, and the transport required for them, both mule and oxen, was obtained locally, the oxen and waggons were, however, only hired.

The Force to be despatched from Home consisted of a total of 41,000 men, exclusive of non-combatant services, and 9,000 horses; 11,400 mules were also required, and these had to be purchased abroad and sent to South Africa. The above horses brought the troops up to war strength, and provided for what the authorities believed would be six months war wastage. These horses came from the Reserve. The Force began to mobilize on 9th October, and embarkation occupied from 20th October to 17th November, by which date the last ship was despatched. But in the meantime reverses in Natal had necessitated more troops being placed under orders, and a larger supply of animals was required.

We have already seen that agents were at this time on the spot in Italy, Spain, North America, and Australia for Remount purposes, though they were not permitted to buy until within a few days of the declaration of war. On 18th September, 1899, purchasing began in Australia, and on 23rd September in Naples, New Orleans, Spain. On 4th October 1,800 animals from Argentina were ordered, but the Commission to purchase them did not leave England until 13th October. In November 3,000 mules were ordered from Italy and the United States, and by the end of November, when it became evident that matters had assumed most serious proportions, the orders for horses and mules became more numerous and larger. We do not intend to follow in detail the subsequent purchases; the object here has been to show that the despatch of a Force oversea necessitated purchases being made in four continents, at a time when the animals, in theory, should have actually been available for the troops. It may be thought that this question is not a veterinary one, and is, therefore, foreign to the matter under consideration, but a little reflection will show how intimately it is connected with the subsequent loss and inefficiency, for the animals so purchased were not in the hard condition of the registered reserve horse, but were soft; further, they were obtained from countries where animal diseases are not as fully under control as is desirable. Apart from disease and softness some of the animals so obtained were unworkable in their then condition. Three thousand stallion mules were sent from Italy, and all had to be castrated in South Africa on arrival! This technical aspect of the question is not referred to by the Royal Commission, probably because there was no expert advice to direct its attention to these matters. Nevertheless, General Buller in his examination, (*R.C. Evid., A. 15,561, p. 218, vol. ii.*) in a long statement on the condition of the Transport in South Africa prior to the arrival of Lord Roberts, says:—"Unfortunately a large number of the six or seven thousand mules . . . . . in the various remount depôts were sick, some 3,000 stallion mules having very unfortunately been sent from Italy. . ." We shall deal with the castration of these mules later. Nevertheless, in reviewing generally the Remount operations conducted from home, the Commission took a very common-sense view in commenting on the lack of system which existed for horsing the Expeditionary Force, and their criticism is best given in their own words (*R.C.Rep., p. 98*):—

> "It was inevitable that when a Department (Remount) so equipped, and with no provision for expansion, was called upon to largely extend its operations, there must be some lack of system. But this is an instance, unfortunately not the only one, in which those really responsible, viz., the men, soldiers and civilians, charged with the duty of adapting the machinery of the War Office to the requirements of the Army, failed in the foresight necessary to provide against a great emergency. It is no doubt true that 'the demands were of unprecedented magnitude,' but it is incredible that anyone who gave any thought to the matter could imagine that in the event of any war which necessitated the mobilization of two Army Corps—and that we have been persistently told was the standard of preparation—it could have been possible for the Inspector-General of Remounts to continue to buy 'in a leisurely way, through accustomed channels, from recognised dealers,' and thus supply not only the first demand, but the wastage of war."

The above indictment takes no notice, as we have said, of the veterinary aspect of the case, but if the Commissioners had had their attention directed to this point they would have understood how hasty buying not only provides unfit but also diseased animals. Before the war had lasted eight weeks, *i.e.*, on the 3rd December, 1899, cases of glanders occurred at Cape Town from among the newly landed Remounts.

In the matter of equipment for the Field the outbreak of war found the Veterinary Department in the position which might be anticipated from a study of what has previously been said under this head. Modern chests had been ordered from the contractors on the strength of money sanctioned towards the end of September, but the 9th October found this service with equipment mainly of obsolete type, with no reserve, and no chance of obtaining up-to-date stores for several weeks, (as a matter of fact the chests took three months to make even under the stimulus of generous pay). In consequence of this India was asked on the day war was inevitable whether she could provide 50 veterinary chests, and in face of the fact that there was no establishment for treating the sick, she was

further asked to furnish an Indian Field Veterinary Hospital † India supplied the chests and furnished the hospital, which embarked at Bombay 22 days later.

The veterinary service had therefore to begin the war by borrowing stores, hospitals and personnel from the other side of the world, and for many months to come it had to continue this policy. The embarkation of the Field Army produced a heavy drain on the slender Veterinary Service, and on 1st November the Remount Department was notified that no more officers from the active list could be spared to it, retired officers were recalled, and a proposal that Civil Veterinary Surgeons should be engaged was submitted to the authorities. So short handed, indeed, was the Veterinary Service, that some of the ships carrying horses had to leave without veterinary assistance on board. In one case the anxiety on this account was so great, that four deaths within a few hours of sailing from Liverpool caused the ship to put into Milford Haven and beg for veterinary help. The questions of sea and land transport of animals is such a large and important one, that special consideration will be devoted to it later.

We propose, at this point, the end of November 1899, to take up the narrative in South Africa from the outbreak of the war.

NATAL.

Operations October, 1899.

It will be remembered that the most vulnerable part of South Africa was Natal, and her geographical position rendered her the cockpit for the first few months of the war. It was consequently to Natal that the reinforcements which arrived from India in October were sent. The Principal Veterinary Officer of the Army was in Natal, with his working base at Pietermaritzburg. Here, before the declaration of war he established a base veterinary stores for which no personnel or accommodation existed, and accumulated supplies by local purchase. He was joined by Captain Raymond from the Cape, who filled up Ladysmith with stores and acted on a Committee which travelled over Natal in search of animals and transport. Irregular troops were being raised that had to be assisted with equipment, vast quantities of hired transport had to be watched, for more than this could not be attempted. The Natal Veterinary Corps previously referred to was a valuable asset, and as local troops were raised and passed on to Ladysmith, the officers of the Natal Volunteer Veterinary Corps accompanied them.

With the reinforcements from India came the greatly needed Field Veterinary Hospital, (No. 6) which had been specially requisitioned. Under the command of Captain Newsom the hospital landed at Durban on 4th October, and on the 5th October reached Ladysmith. It deposited at Maritzburg the anxiously awaited veterinary chests furnished by India. Major Crawford also arrived from that country and was posted to Maritzburg in charge of the base This liberated the P.V.O. to proceed north and inspect the veterinary arrangements for the garrison of Ladysmith. He reached Ladysmith on 17th October, where he intended to establish himself temporarily, but the military events, yet to be narrated, were moving very rapidly, and gradually enclosing Ladysmith within a ring fence. The shutting up the P.V.O. in a besieged town at such a critical juncture was most unfortunate, for the veterinary service was left without its responsible head who had been many months in the country before the war and had everything at his fingers' ends. Proper veterinary administration at this time for the troops on arrival in the country meant everything, but so certain were the military authorities that the cutting off of Ladysmith was only a temporary matter, that for some time no successor to the P.V.O. was appointed, in spite of the fact that each day brought its share of questions to be answered and matters to be dealt with, for in war arrangements must be made at once if they are to be of any use. Finally Major Crawford was made Senior Veterinary Officer in Natal, though the office records and clerical staff were shut up with the P.V.O. in Ladysmith. Few can realize the strain and anxiety of administrative work when matters are at fever heat, as they were at this time in Natal, and when there was every prospect of the whole Colony being overrun by the enemy. Under the strain of work Major Crawford's health soon showed signs of giving way.

Eight days after war was declared, *i.e.* 20th October, the force at Dundee fought the action of *Talana Hill*, and the Veterinary Department was sufficiently unfortunate to lose the services of one of its two officers present. Lieut. Shore was captured, together with a squadron of the 18th Hussars and eight months elapsed before he was liberated.‡ In the first shots at dawn, when the Boers surprised the position, the horses of the Mounted Infantry picket stampeded. It was not a good beginning of the untrained horse under fire. The losses among the horses at Talana were rendered heavy by the capture of the cavalry squadron; there were small fire losses among the staff, artillery, mounted infantry, and transport. Many animals of all branches were wounded. A further attack on the camp on the following day occasioned some loss; on the 22nd it was evident that a retirement on Ladysmith would have to be effected. At 9.30 p.m. on 22nd the retreat from Dundee began by a circuitous route, *via* Helpmakaar, in order to avoid meeting the now enveloping forces of the enemy. The weather was bad, the days intensely hot, the nights bitterly cold; there was little time for feeding or rest, and night marching, always

† India being always at war was compelled after the Afghan Campaign of 1879 to recognise the necessity of Veterinary Hospitals for both peace and war. It was one of these which was borrowed; several others followed later.

‡ The second officer present at Talana, and in the subsequent retreat to Ladysmith, was Lieut. Bartlett, A.V.D.

trying, was interrupted by the weather. On 24th, at 5 p.m , the force reached the bed of the river Waschbank when a terrific storm burst; the troops were rapidly pushed across before loss of life occurred, and bivouacked on the South bank. In an hour the stream of three inches deep was a roaring torrent 35 feet wide and 12 feet deep, a very good example of the rapidity with which a formidable river is produced in South Africa. On the 25th the force continued its way towards Ladysmith, and during that night suffered its worst experience from the drenching tropical rain then falling. The last march towards Ladysmith is graphically described in the Official History of the War (Vol. i., p. 150), and is an inimitable word picture of the hardships of transport animals, and the misery of night marching in bad weather:—

"At 6 p.m. began a night march of great distress and trouble. Soon after the advance guard moved off a heavy downpour converted the road into a sea of semi-liquid mire, which the transport ploughed into waves and furrows. These, invisible in the black darkness, almost held down the soldiers ploughing knee-deep into them. The teams of mules, exhausted by prolonged labour and insufficient food, impatient by nature of wet and darkness, strove with much suffering to drag the rocking waggons through the mud, and, as is their habit when over-mastered by their load, threw themselves often in confusion athwart the track and enforced a halt. At 9 p.m. the whole transport stuck fast for more than two hours. The rearguard closed up, but the troops in front of the baggage knowing nothing of its misfortunes, and travelling on a road not destroyed by its struggles, pushed on and left it. With great efforts it was set in motion again, but some half-dozen of the waggons, being embedded hopelessly, had to be abandoned. Half a mile further the convoy was again in difficulties. From this point all cohesion was lost. Some of the waggons passed on, some remained; it was impossible for their escorts to tell which were derelict or which they must still consider as in their charge."

The fatigue of this retreat may be estimated from the account just given of the state of the road. From the morning of the 20th to that of the 26th October the force had had practically no rest, and the last night's march had completed the wearing out process. It is true the march was short, being only 64 miles from Dundee to Ladysmith, but the weather conditions could not have been worse; the last 32 miles, which the Times History of the War (Vol. ii., page 208) describes as floundering misery which no troops could stand unshaken, was a severe test. It sometimes took hours for the transport to cover 100 yards. Yet the number of abandoned animals was relatively small. On the other hand on arriving at Ladysmith the sore backs were numerous, and some were severe, there were many injuries caused by wire entanglements during the night marches and there was a loss of condition from incessant work on short rations.

To enable the Dundee Force to reach Ladysmith in safety, two actions were fought by the Ladysmith garrison. At *Elandslaagte* on 21st October the fire loss was small, though sore backs were numerous. The losses in the Imperial Light Horse were probably considerable but are unknown. On the 24th the action of *Reitfontein* was fought but the casualties among the 3000 horses present are unrecorded.

With the arrival at Ladysmith of the Dundee garrison the iron ring around this position was being drawn closer, and on 30th October an attempt was made to relieve the pressure by the action of *Lombard's Kop* a little distance from the town. The operations began at night, and the disaster which occurred was primarily due to the stampede of the mules of the mountain battery in ascending a precipitous hill in the dark. This was the second stampede of untrained animals within a few days, and was much more serious. The matter is of great veterinary interest, for in spite of preaching by this department on the risk attached to using untrained animals in war, the lesson has not even now been fully appreciated. The graphic account of the disaster given in Vol. i., p. 187, of the Official History of the War will appeal to all who have any experience of equine panics:—

"Suddenly from the darkness encircling the clambering soldiers broke out a roar like that of an approaching train, there was a rush of hoofs and the clatter of scattering stones. In a moment a group of loose animals, whether horses, mules, or cattle it was impossible to discern, bounding down the rocky precipice, tore past the last companies of the Royal Irish Fusiliers, and disappeared as quickly as they had come into the gloom of the valley. The rear of the Irish Fusiliers checked and staggered back upon the long line of ammunition mules. The natural timidity of these animals, many of them almost untrained, had been increased by their long wait at the rendezvous, and by the fact that they were led by strange and unskilled men. Now it became an uncontrollable panic, leaping round dragging their muleteers with them, they plunged backwards in terror, wrenched themselves loose, and thundered over the steep slope upon all below them. The battery mules and those of the Gloucester Regiment were dashed downwards and joined the rest, and the whole mass poured upon the Gloucester Regiment, which had just begun to breast the hill. A shout arose; the men of the front companies were buffeted and swept from the track in every direction . . . . Then the uproar died away in the valley of Bell Spruit, leaving the column disordered and amazed at its own wreck. The two Infantry regiments between them recovered 17 out of their 118 mules, while 130 mules of the Mountain Battery had disappeared, and not a complete gun of the six remained.

This account of the stampede is here quoted, because it conveys to the mind the hopeless confusion which may suddenly occur in the best conceived military scheme. Panic stricken animals cannot be controlled when being led. No more success would have attended these efforts had the disaster occurred in daylight. Nothing can save the situation but men being on the animals' backs, and in the case of pack animals this was obviously impossible. Both military and veterinary interests meet on common ground in considering stampedes. The nervous explosions resulting in a panic may be excited by the most trifling cause, a rifle shot in the dark, a piece of paper blowing through the lines during the day, a sudden cheer, a thunderstorm, a loose stone rolling down a hill in the dark. are all potential sources of risk; sometimes no cause can be assigned. With untrained animals as these were the risk is intensified. Only those who have witnessed a

stampede can form any notion of the electrical suddenness with which it occurs; the fear and horror of the unknown is immediately transmitted by some force which cannot be defined, to all animals in the vicinity, and as if by some preconceived arrangement they dart off in the same direction and at the same moment. The slowest are trodden down by the fleetest, the weakest pushed aside by the strong, they collide, crush and press themselves into a mass characterised by intense cohesion, so that all obstacles are disregarded, and until exhausted the mob will rush as boldly into a chasm as into a wall.

The veterinary service can, however, suggest precautionary measures to avoid such disasters as that related above. A mule or a horse that makes up its mind to break away while being led by one man can always effect its purpose; no single man can on foot control either of these animals if they intend to escape, but two determined men, one on either side may control them, and in the large majority of cases certainly will. If each mule had been led up the hill by a man on either side, it is not too much to say that the stampede at Lombard's Kop would not have occurred, and the disastrous termination of that action probably have been prevented. In the general action which occurred at daylight 5843 horses and mules were engaged, the casualties from shell and rifle fire were numerous but no returns are available.

The last days of fighting during October had greatly swollen the number of sick in the Veterinary Hospital at Ladysmith, and though the P.V.O. had relieved the pressure, which had since his arrival been rapidly increasing, by despatching south to Maritzburg cases not likely to make an early recovery, nevertheless on the 1st November, the day following Lombard's Kop, the hospital presented such a large target that the enemy opened fire on it.

The point at which the investment of Ladysmith was complete has now been reached. We have seen that ample veterinary supplies had been accumulated there by local purchase, that the arrival of means from India placed hospital organisation on a sound footing, and that there were sufficient veterinary officers present for the care of the large number of animals. For four months this Force rotted in the pestilential position of Ladysmith, and it was five months before the P.V.O. was able to join the staff of the Commander-in-Chief. Ladysmith must now be left, nor shall we return to it until all the operations for its relief have been dealt with.

CAPE COLONY.

October to December, 1899.

The declaration of war saw the Republican force thrown athwart the line south of Kimberley, this town was invested, and all north of it cut off from the world. Mafeking and the force acting on the Western border of the Transvaal will be dealt with later, but for many months they were from this moment independent of all supplies, either remount or veterinary, and had to look after themselves. With the forces under Colonels Plumer and Baden Powell, were two veterinary officers, Lieuts. J. Moore and W. D. Smith. In Kimberley there was no military veterinary officer, and only a small body of mounted troops.

The cutting off in a few hours of an integral part of Cape Colony was evidence of the intention of the enemy, and active recruiting to resist invasion now began. With it there was great remount activity, which took up the entire time of the two or three veterinary officers in the Colony. The Remount Department of Cape Town was out of the way for the local purchase of animals; the Colony was being invaded on the East, and other troops were being raised there, so that a depôt at Queenstown was opened by Major Rimington, 6th Dragoons. He left shortly afterwards, and the work devolved almost entirely on Lieut. A. H. Lane, A.V.D., who, by a fortunate circumstance, had been some time in South Africa, and his local knowledge at this crisis was of the greatest value.

There were very few regular troops in the Colony, and the sweeping onwards of the Republican Forces necessitated the evacuation of such important points as the railway junctions by which cross communication in the Colony was maintained. Stormberg and Naauwpoort were both evacuated early in November, the latter for only a brief period. The purchasing of animals continued, and some thousands were collected at Queenstown and other places for local troops, including the transport of the Division which it was intended to send for the recovery of Stormberg. There was no administrative veterinary officer in the Colony; the headquarters of the P.V.O. had for some time been established in Natal, and at the date we are speaking of (October) he was busy putting the latter place in a condition to stand a veterinary strain, but his presence in Cape Colony was nearly as urgent. It was known that thousands of animals would shortly be passing through the ports of the Colony, and no arrangements had yet been made for their inspection on arrival, or for the reception of the sick, or the isolation of the contagious. No storage accommodation was yet provided, no clerical staff, nothing in fact in course of preparation to meet what daily promised to be a big war. The cause of this was that no administrative officer was in the Cape. In the absence of Colonel Matthews, no one was left behind with authority or sufficient seniority to act, and it was not until 19th November, five weeks after the declaration of war, that Lieut.-Colonel Rayment reached Cape Town.

The P.V.O. of the Army had by that time been shut up in Ladysmith for over a fortnight. After some delay Lieut.-Colonel Rayment was made Acting P.V.O. South Africa, and accordingly took up the duties of providing some organization to meet the heavy work ahead. His first action was to arrange for offices, stores, and a Base Veterinary Hospital for the reception of the sick, which were sure to arrive with the Force now on the sea.

Remounts were also arriving, and brought diseases with them. The 6th Dragoons had just landed and had brought sarcoptic mange from home.*

At Cape Town there was no effective means of isolation, and no organisation for dealing with such cases. The regiment took the field, less the affected horses, but the disease continued. The remount depôt at Stellenbosch near Cape Town was rapidly growing; in accordance with the recognised arrangement the sick and well were stabled together, so that early steps had to be taken by the P.V.O. to have a portion of the farm told off as a hospital in order to ensure the isolation of the sick. Of veterinary stores at the time of his arrival there were none, later on remount ships brought their spare medicines in bulk; many of these stores had gone astray, for so hurriedly were the horses disembarked, owing to limited dock accommodation, that the ship was moved out into Table Bay almost as the last horse left her, and the stores, if not by that time recovered, were frequently never seen again. Nothing could have been more unfortunate than the shortage of stores, especially surgical, at such a time. It is true the Field Army was bringing its veterinary equipment intact, that is to say it was not to be used until the troops landed, but there was no reserve to replenish it, nor material to meet the demand now being put forward for veterinary equipment for the large number of troops being locally raised in the Colony. Some was expected from India but had not yet arrived. The Acting P.V.O. bought up what he could at Cape Town and the other ports to meet these requirements, but surgical appliances were to be had in very limited amounts, and field chests had to be made. War rates were paid for these hasty and incomplete outfits; the same sum expended in peace would have gone four times as far. To meet the requirements of the troops a regular reserve was necessary and none existed. No reserve of drugs, let alone of surgical instruments and dressings existed at home, so that none could be sent out to the seat of war until obtained, and this took time.

The Base Stores were opened on 30th November with such material as could be brought together, and a non-commissioned officer of artillery was placed in charge. No ledgers existed, nor could they have been kept had they been there; there was no clerk, and no subordinate staff but the issuer with a few Kaffirs. The drugs, in bulk, removed from the remount ships, had to be made up into packages suitable for requirements, and delivered at the railway station for transport to their destination. The work was incessant, and many months passed before it was possible to obtain a staff for the proper running of a business which developed into one equal to that of a large wholesale chemist.†

From this time, November, onwards, military activity was intense, troops were arriving almost hourly, and were pushed up country as fast as trains could be found, or else sent on to the other ports, or to Natal. Among the arrivals was No. 2 Field Veterinary Hospital from India. It brought with it spare field equipment which at this crisis proved of great utility. A part of the hospital was retained as a Base Hospital, the other section proceeded to Naauwpoort on 11th December under the command of Major Forsdyke. We shall follow its fortunes a little later. The position of the P.V.O. at this time was one of great anxiety, sick animals poured into Cape Town daily from overseas. Port inspection of all arrivals was absolutely essential, while the staff for the purpose was quite inadequate. Base Stores with no organisation were expected to work with the regularity of a smooth machine. Remount Depôts were daily growing in size, and from the very nature of things their infection with disease could only be a matter of time. The shoeing question, which is not a veterinary one, was already giving the usual trouble. There were no farriers, and all the Local Corps required men for the shoeing of their horses. Every application for farriers was sent on to the Department which had not a man of its own, or means of obtaining any. It is very fortunate that the officer administrating the Cape had not Natal on his hands as well. The paucity of the professional staff and the inadequacy of the subordinate personnel, even after the arrival of the hospital from India, was a serious source of trouble. The expert staff in Cape Town had to do the work of subordinate laymen which is a waste of energy, for the expert can do three times the amount of work in his special line when supported by lay assistance. The Acting P.V.O. had also to administer three bases and three lines of communication. No extra administrative officer was given him, as it was considered that any day would see Ladysmith relieved. But even so, each of these lines required an administrative veterinary officer, one man could not control them, even with good organisation, but with no organisation it was hopeless. No officer on the line of communication is of any use unless he can go and see matters with his own eyes. It is obvious that the Acting P.V.O. could not be spared from Cape Town even for a day, while the lines he was responsible for could not have been travelled over by rail in less than a week, let alone inspected.

On the 5th December the first case of imported glanders occurred at Cape Town; on 9th the 'Rapidan' arrived, having had cases during the voyage, and on 11th an imported horse was found affected with the same disease in the Remount Depôt at Stellenbosch. The war had barely lasted two

* This regiment had suffered from mange in Ireland, and was believed to be free when embarked, but the disease broke out again on board ship. To enter on a campaign with sarcoptic mange is a heavy handicap.

† When the war terminated no account of receipts and expenditure could be given for the earlier months of the campaign, though the War Office auditors expected that every issue and receipt of stores, no matter how trifling, should be accounted for and supported by documents! One hour's practical acquaintance with the difficulties which arise in war would have demonstrated the impossibility of this council of perfection. We shall later on deal fully with the question of the supply and distribution of stores, and the impossible position in which the veterinary service was placed during the early months of the war.

months, yet already at Cape Town strangles, mange, influenza and glanders, had been introduced. It was an earnest of what was to follow, and in our subsequent considerations of the contagious and infectious diseases during the war—which some have believed to have been contracted locally—it will be necessary to remember this early evidence of importation.

The Remount mules from Italy were now arriving in large numbers, and to the dismay of the authorities they were found to be stallions. The account given of their behaviour during the voyage was not calculated to allay anxiety; they had converted the ship into a pandemonium, and their behaviour when landed fully bore this out. It was evident that they would be of no use until castrated. The purchase of stallion mules for service was a grave error of judgment, which would only be excusable in an army that had never previously been to war. We must remember that this was the most anxious period of the campaign; Cape Colony had been invaded, half of Natal was overrun, Ladysmith and Kimberley besieged, the Dutch in the Cape on the verge of general rebellion, and a successful counterstroke became an absolute necessity, if the troops then in the Field were not to be swept away. Yet a portion of the transport—without which no army can move a mile—had to be detained at the Base to undergo a serious surgical operation, which apart from its attendant mortality and complications would entail the loss of at least three weeks' service, and relative unfitness for three weeks longer. The Report of the Royal Commission on the War is silent on this question, its gravity was not apparent to the Commissioners, who had no expert advice to guide them, though General Buller mentioned the matter in his examination, see *Evid. A. 15,361, p. 218.* These mules went principally to Queenstown, and later we shall see what occurred.

In the first days of December, the question of a more liberal ration for animals in the Field was taken up by the Acting P.V.O. at Cape Town. The authorized scale laid down was 12lb. grain and grazing. No regular hay ration existed, and he pointed out the necessity of one being supplied. His opinion on this point was in sharp conflict with that of the military authorities. It was perfectly well known that the Boers used no hay ration, that their animals grazed, and that under ordinary peace conditions the excellent grazing available during the summer on non-Karroo veldt rendered a hay ration unnecessary. All this may at once be conceded. But the present was not time of peace but of war; the British Forces were tied down to certain localities beyond which they could not move; not only did local grazing rapidly become exhausted, but English horses, used to manger feeding, were as helpless on the veldt as the town-bred soldier. They did not know what was expected from them; when they had purchased a little experience, the grazing had been eaten up by mules and herds of oxen.

It seems to have been forgotten that the English troop horse was not a Boer pony. He was a newly arrived foreigner, unacclimatized, ignorant of the country, weak from a long voyage—having had no rest, and had recently left a comfortable stable where he had always been hand fed, and kept tied up. He had had no previous experience of hot dusty days and tropical deluges by night, yet he was expected to behave as if immediate adaptation to the methods of the animal of the country were possible. He went out to South Africa for the purpose of war, and the amount of time required daily for grazing could not have been given him, even had he at once adapted himself to the habits of the country, and been living in the midst of plenty. Excluding actual days of fighting, not a day passed but that the cavalry was engaged in operations on various scales of magnitude, varying from patrols to a reconnaissance in force. How could it be expected that after a long tiring day the horses would be sent two, or perhaps three miles to a grazing ground when they ought, like their riders, to be resting and feeding in their own camp? Of twilight there is little, and the most pronounced grazing theorist would hardly advocate the horses being turned out all night in the presence of the enemy. The utter want of consideration shown for these unfortunate creatures, the ignorance exhibited regarding their care and management, and the inability to gauge the exhausting nature of the work they had to perform, even on non-fighting days, are among the most remarkable revelations in Staff ignorance. †

The following was the scale of forage fixed by Army Standing Orders, dated 6th November, 1899, *i.e.* a week after the arrival of General Buller:

Forage.

"The daily rations will be—

Horses 12lb. grain.
Mules 8 „ „

"The entire ration will not be drawn *when sufficient grass is available.**

"Horses of large size, or doing hard work, may receive an additional 2lb. grain if considered absolutely necessary by the Commanding Officer, and *if the extra quantity is available.**

"Two pounds of hay may be substituted for each pound of grain, to such an extent as may be ordered by the Commanding Officer. The ration substitute of hay will not, however, exceed 8lbs. per diem.

"Whenever possible horses should be grazed or grass cut for them, in order to minimize the quantity of forage to be carried."

† It is perhaps desirable to point out that the Staff or brain of the Army is mainly drawn from the dismounted branches. To assist it in the settlement of all technical questions it is provided with skilled advisers. These may, or may not, be consulted; under any circumstances the Staff is under no obligation to act upon the advice given.

* The italics are ours.

According to this scale if the Commanding Officer drew all the hay permitted, the daily ration was as follows:—

Horses, 8lb. of grain, 8lb. of hay.
Mules, 4lb. „ 8lb. „

On the 15th December, 1899, the Acting P.V.O. having protested against the above order as a starvation diet, submitted an alternative scale which fed animals on service more liberally than they are fed in peace, a common sense view to which we believe no exception will be taken. The above date is interesting, as the Acting P.V.O. had been long enough in the country to see the effect of illiberal feeding at the Remount Depôt, Stellenbosch, and he had information from his officers at the front, in all three centres of activity, viz., Modder River, Naauwpoort, and Queenstown, of the insufficiency of the food supply. Later on he went to Modder River and Naauwpoort and saw for himself the condition of the cavalry, and begged that something might be done to save these horses from semi-starvation.

At the time the P.V.O. was pressing on the attention of the authorities the seriousness of the short forage allowance, the following telegram was despatched to Lord Methuen; its date should be compared with that of the representations of the P.V.O. (*R.C. Evid., Q. 3472, p. 145*)

"From Chief of Staff, Cape Town, to Lord Methuen, Modder River, December 17th, 1899. Adhere strictly to authorized scale of rations for men and animals, and economise forage by grazing mules when possible."

Less than three weeks later Lord Methuen telegraphed to say that the Commander-in-Chief should be informed that horses cannot be efficient for service unless they are given an extra allowance of 7 lb. oat-hay, and the same for mules. In the evidence given to the Royal Commission by General Buller's Staff Officer, charged with the duty of providing forage, he said, reading from his war diary, (*R.C. Evid., Q. 3472, p. 146*).

"Lord Methuen's mules have lately fallen off in condition, as the grazing of so many animals has completely exhausted all the grass near the Modder . . . ."

Lord Methuen, when under examination, says in his evidence (*R.C. Evid., A. 14162*):

"The horses were soon worn out, for they were in poor condition when they left Orange River, being dependent entirely on their insufficient ration; there was no grazing at Orange River. I do not recollect for certain what the ration there was; it should have been 10 lb. oats and the ordinary ration of hay, and they might have had that, but then Sir Redvers said to me '*Mind you, you will find there is grazing up there, and you will make them graze; don't listen to anyone if he says they want more for their horses.*'* Well, there was hardly any grazing there, and the horses ought to have had a better ration than they had.

Q. 14,163. Was that owing to any peculiarity in the season?—*A.* Oh, no; but you see the force had been there some time, and unless you can manage to cover a very great deal of ground your force soon eats up the grass around; and another thing is that all that part of the Karroo never gives good grazing . . . .

Q. 14,164. Sir Redvers Buller must have had inaccurate information with regard to the grazing there?—*A.* I think he had too hopeful a view of the grazing there and the condition of the horses, but he did not get too hopeful a view from the officers who were up at Orange River."

We have entered with some fullness at this point into the forage question, because, as we shall show later, it was the basis of the cavalry collapse in the Kimberley-Paardeberg operations. So far as the veterinary authorities were concerned, the danger was early pointed out, and though acute differences of opinion on the question between the military authorities and the Acting Principal Veterinary Officer extended over two months, the matter, as we now know from the published evidence, was settled by Sir Redvers Buller even before Lord Methuen started for Orange River. Sir Redvers' experience had been gained in Natal; he apparently had no knowledge of the country bordering on the Karroo, the climatic conditions of the two being very different. Further, he made no allowance for the want of acclimatization of the English horse, nor for his ignorance of local conditions, for the length of time which grazing occupies—the horse having to find his food and then collect it—nor for the fact that the English horse could never extract by grazing the same value as the colonial pony. The Veterinary Report on the Zulu War, 1879, showed that English horses must be well fed in South Africa if they are to do the work expected from them.† Both General Buller and his Staff Officer at Cape Town responsible for forage supplies served in the Zulu War, so that it can hardly be said the conditions of the English troop horse in South Africa were new to them. Three influences were at work on the question of feeding. First, the spirit of economy so frequently exhibited at the wrong moment. Even after fixing the ration, the order states that the whole amount is not to be drawn when sufficient grass is available! Secondly, the difficulty in obtaining forage except by paying liberally for it. All forage had to be sent up to the front, and the forage reserves were held by farmers, who were not under martial law and whose relations we were fighting. It was hardly likely they would sell their forage at ordinary market rates, but experience has always shown that gold can purchase anything except health and happiness. Ample supplies could have been obtained from the Cape Dutch by high payments. Such an expenditure at this time would have saved the horses, and the subsequent outlay of millions in their replacement. Finally, it has been urged that the carrying capacity of the railway was limited. It is certain that in November, 1899, we did not know what a single line was capable of performing: we found out before the war was over, and any gaps in that knowledge have since been completed by the Russian experience in Manchuria. In other words, so far as the railway was concerned the horses could have been liberally fed.

The literature of the war is enormous, and some of it really valuable, but only one author, so far as

* The italics are ours.

† *The Veterinary Record*, October, 1910, which may advantageously be re-read in connection with this history.

our knowledge goes, has placed his finger on the real cause of the collapse of the Cavalry Division.‡ This collapse prolonged the war for two years; this is no flight of imagination. But for the starvation diet issued to horses at a time when energy and vitality were everything, not a Burgher on the Modder would have got back to Bloemfontein. Two Paardeberg's within a few days, and the possession of the Presidents of the two Republics, would certainly have gone a long way to bringing matters to a close, and all this, as we shall see later, was not only possible but absolutely within reach. The fruit only required plucking, but the strength to reach forth the hand did not exist, Can anything in the whole of that long weary campaign be more exasperating than the thought that a few thousand tons of oat-hay for four months would have brought the war to a close and saved two hundred millions? Was there ever a better example of penny-wise? Nowhere in the four closely printed Blue Books dealing with the war is the fact stated that the breakdown of the Cavalry Division and *its annihilation for the remainder of the war as an effective arm*, was due to the policy of the Commander-in-Chief in ordering the employment of a diet suitable for the light pony of the country, but quite unsuited to the English horse The latter was a stranger in the land, unacclimatized, carrying a crushing weight, living in tropical heat while wearing an English winter coat; short of water, and receiving the rations of a pony while doing the hardest work a horse is ever called upon to perform. Had the veterinary service been listened to in Cape Town in December, 1899, the history of this war would have been very differently written, for it would have ended at Bloemfontein in March, 1900.

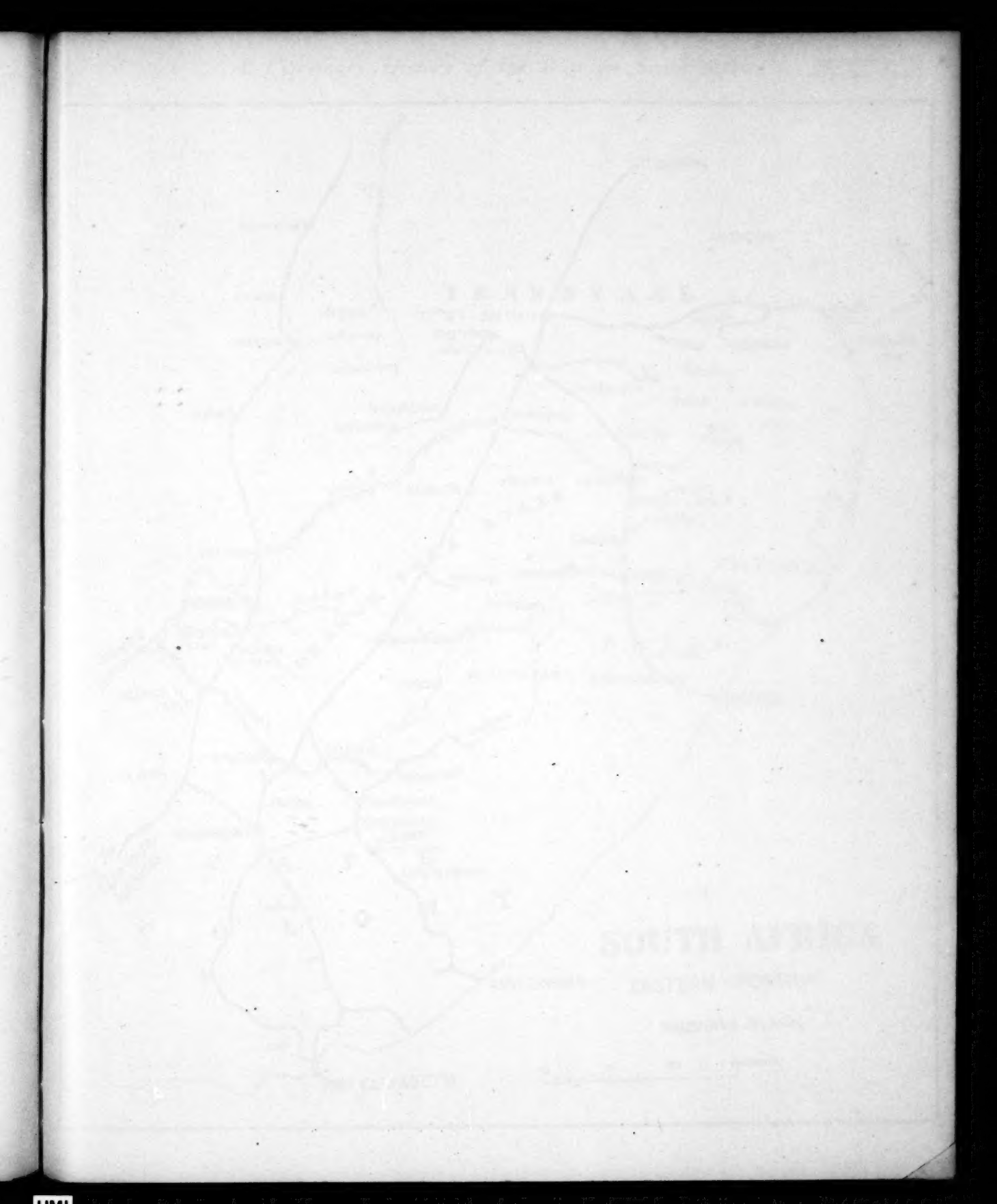
The cavalry failed owing to lack of mobility, and though it is not disguised that the long sea journey had something to do with loss of condition, there were troops which had been landed long enough to have quite recovered from this, while others would, under liberal feeding, have made a better struggle than they did. That the Modder River-Paardeberg losses would have been considerable, even if the horses had been previously well fed, is not denied, but there is a difference between considerable loss and *obliteration*, and the Army would have been spared the humiliation of seeing its cavalry unable to move beyond a walk, and some at an absolute standstill, at a time when a canter would have cut off the Presidents of both Republics and with them their entire forces. The wholesale loss of horses between Modder River and Bloemfontein, which will shortly be considered in detail, dismounted the Cavalry Division. Those for whom this history is written do not require to be told that a raw, untrained, soft remount requires handling and conditioning before he is fit to work, and for this the enemy very skilfully allowed no time. The trained troop horse, which had literally been starved to death, could never be replaced unless hostilities ceased for at least two months. Hostilities never ceased for a day, hence the statement previously made, that the underfeeding of the cavalry in Cape Colony led to their obliteration as an effective arm for the remainder of the war.

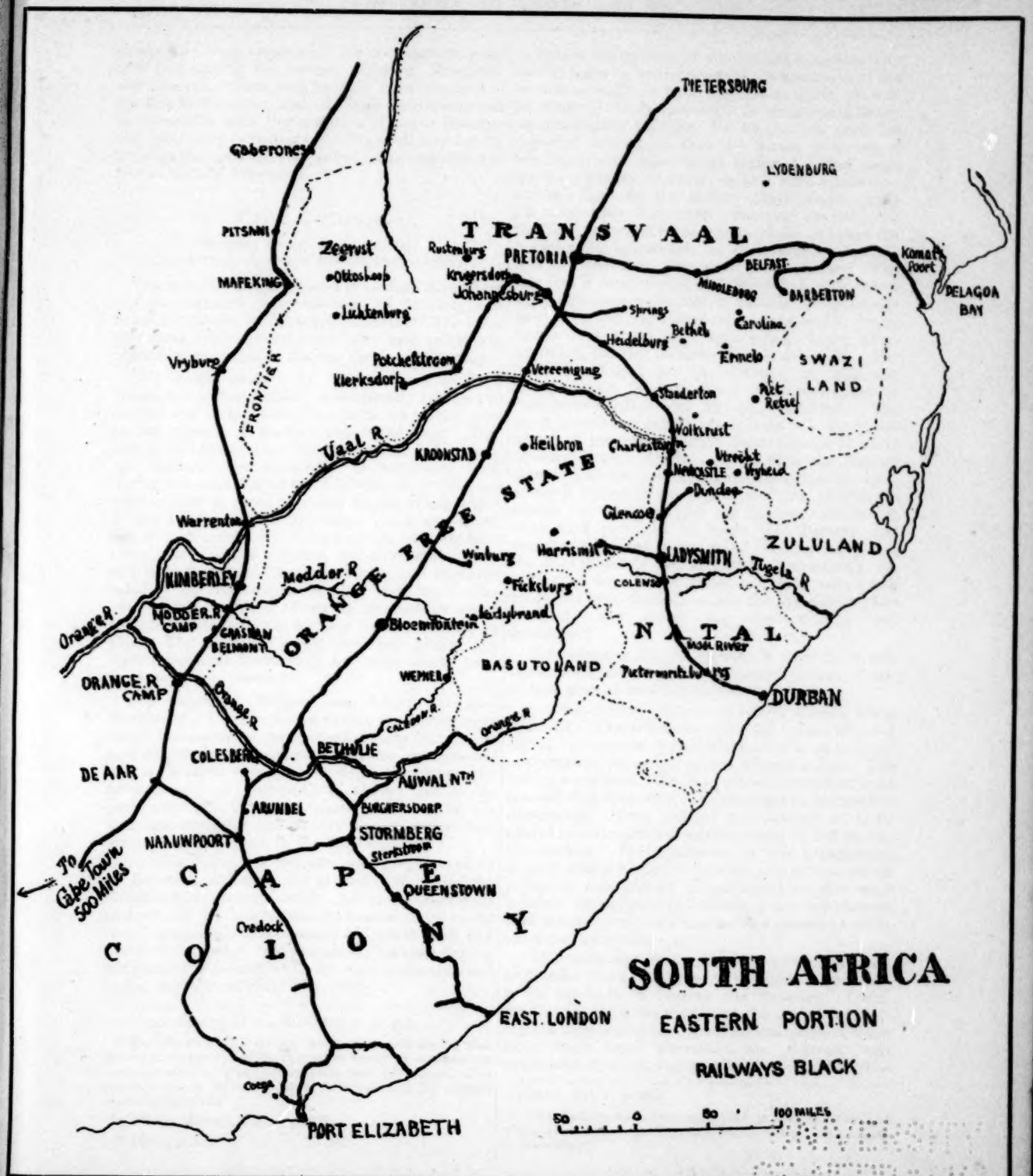
That there were contributory causes there is no doubt. We know nothing of the military necessity for keeping horses saddled up all day on the lines in case they might be needed, or of long patrols or reconnaissances yielding blank results; but it is against common sense for men to be sitting on their horses backs when they ought to be dismounted, or standing with horses ungrazed in grass up to their knees, because either the bits are troublesome to replace, or want of familiarity with war did not suggest the obvious. These contributory features will be referred to from time to time, especially when considering horsemastership, but the main and all-essential point at the present period of the war, is the daily diet laid down for horses on a campaign, which all knew would be of a most exhausting nature.

When the Acting P.V.O. in December, 1899, proclaimed what must follow in the wake of such a diet as that laid down in the Army Standing Order quoted, he knew that he was considered obstructive. When from conviction he felt it his duty to press the point, he did so with a full knowledge that his action might be construed as wanting in subordination. He has been dead some years, but lived long enough to learn from a Parliamentary Enquiry that of which he was kept in ignorance in 1899. At no time was it a source of satisfaction to him to know his forecasts had in every respect come true, and to the last he bitterly deplored the way in which his advice had been received.

To repel the invasion of Cape Colony three forces were rapidly organised. The first was on the Western Railway line, known as the Orange River or Western Force, under the command of Lord Methuen, who left for Orange River on 10th November. The Central Force was operating between Naauwpoort and Colesberg, near the Orange River, and was under the command of General French. He had left Ladysmith by the last train before the investment was completed, came round to Cape Town, and left for Naauwpoort on 18th November. The Western and Central Forces were in communication by railway. The Eastern Force, under General Gatacre, who landed at East London on 16th November, was concentrating with the object of recovering Stormberg Junction. This Force was not in communication with the Central by railway, owing to the enemy occupying Stormberg Junction, so that all veterinary supplies had to go to it by sea. The first fighting occurred in the Western Force in November, the next occurred in December, simultaneously in both the Eastern and Western Forces, and in a day or two the reverses sustained at Magersfontein and Stormberg were followed by activity of the Republican Central Force, which lasted for many

‡ "With General French and the Cavalry in South Africa." C. S. Goldmann, 1902.




PIETERSBURG
LYDENBURG
Gaberones
PITSANI
MAFEKING
Zeerust
Ottoshoop
Lichtenburg
Rustenburg
PRETORIA
Krugersdorp
Johannesburg
TRANSVAAL
BELFAST
MIDDELBURG
BARBERTON
Komati Poort
DELAGOA BAY
Springs
Carolina
Bethel
Heidelberg
Ermelo
SWAZI LAND
Potchefstroom
Vereeniging
Klerksdorp
Vryburg
FRONTIER
Vaal R.
KROONSTAD
Heilbron
Standerton
Wolvekrust
Utrecht
Vryheid
Dundee
Glencoe
Warrenton
Winburg
Harrismith
LADYSMITH
ZULULAND
Tugela R.
KIMBERLEY
Modder R.
Ficksburg
COLENSO
Orange R.
MODDER R. CAMP
CASTRAN BELMONT
ORANGE FREE STATE
Bloemfontein
Ladybrand
NATAL
MOOI RIVER
WEPENER
BASUTOLAND
Pietermaritzburg
DURBAN
ORANGE R. CAMP
Orange R.
CALEDON R.
BETHULIE
COLESBERG
DE AAR
ALIWAL N.TH
ARUNDEL
BURGHERSDORP
NAAUWPOORT
STORMBERG
Sterkstroom
To Cape Town 500 Miles
CAPE COLONY
QUEENSTOWN
Cradock
EAST LONDON
Coega
PORT ELIZABETH
SOUTH AFRICA
EASTERN PORTION
RAILWAYS BLACK
50 0 50 100 MILES

weeks, and was responsible for considerable wear and tear among the horses. During November and December there was fighting from one end of the line to the other, and this must be remembered in connection with the question of horse wastage and veterinary organization. We shall now briefly consider the veterinary aspect of these operations in November and December.

CAPE COLONY.

Western Force, Orange River: Operations, November and December, 1899.

The mounted troops present at Orange River were the 9th Lancers, three batteries of Artillery, and some companies of Mounted Infantry. The force possessed 2,300 animals, but only two veterinary officers were available, Lieuts. Todd and Southey.

The troops crossed the Orange River on 22nd November, and as artillery was urgently required to control the enemy's fire, two batteries trotted nine to ten miles to a position before Belmont. This trot caused the death of five horses from exhaustion, and rendered the remainder so leg-weary that, during the engagement the following day, the guns were unable to move with any degree of rapidity.* It was a severe test for any horse under an African sun in midsummer, but these animals had only been twenty days in the country, and though they had not been harrassed like the cavalry and mounted infantry by reconnaissance, they were unfit after being thirty-five days at sea (in two vessels which repeatedly broke down) for any work so severe as this. The casualties would have been greater but for the fact that the animals had come out of hard work before shipment.†

The action at *Belmont* was fought on 23rd November. The fire losses among the horses were small, but owing to the exhausted state from thirst and fatigue the engagement could not be converted into a decisive victory. On 24th November the force moved on Graspan; it arrived late at its destination, and there was insufficient water for the men and none for the battery horses, which told severely against them in the fight next day.‡

On 25th November *Graspan* was fought, and as at Belmont, although the ground was singularly favourable for cavalry action, yet the horses were so worn out by heavy reconnaissance duty, under the adverse conditions of sandy soil, great heat, and a scarcity of water, that the enemy escaped paying the penalty of failure, while his *morale* was stiffened by his superior mobility.**

This is the opinion of the official historian, who has to begin by apologising for the weakness of the horses, as early as 25th November, 1899. It will be observed that he ascribes it as being due to heavy reconnaissance duty, etc., but he does not touch the essential causes, *i.e.* that the horses were out of condition, and were being underfed. The most urgent question, however, at this time was water, and the fight for the *Modder River* position took place on 28th November. Between the 25th and the 28th every effort had been made to spare the horses as far as possible, as their exhausted condition had become a source of grave anxiety. The day was a most trying one, with water almost in sight and none available; it was also exceptionally hot. The fire casualties were numerous, many horses of the Artillery were killed, many more wounded, but the numbers are not available. The total fire losses for the Cavalry at Belmont, Graspan and Modder River only amounted to twenty-two killed and fifty-five wounded. The most interesting veterinary feature was the forced march of the 62nd Battery from Orange River to Modder River. At 10 a.m. on 27th the Battery started and reached Belmont (30 miles) at dusk, where it halted for the night; at 6 a.m. on 28th the march was resumed, and the field was reached in time at 2 p.m. In 28 hours this Battery had marched 62 miles, the "going" being heavy and the days intensely hot, with little or no water.† Six horses fell dead in the traces, and forty more never recovered from the fatigue, but the expenditure was justified, and under the circumstances not excessive.‡

The retreat of the enemy from Modder River was unmolested, as, owing to the exhausted state of the horses, pursuit was impossible.

A much needed eleven days rest at Modder River followed. The numerous wounded horses afforded one of the earliest opportunities on a large scale of appreciating the power of the Mauser bullet. The bullets were most difficult to extract, and experience showed that they were best left alone unless readily detachable. They twisted and turned in their course in a remarkable manner, even in soft tissue, like muscle. The experience in this engagement showed that the injuries were not very serious unless joints or the pleural or peritoneal cavities were injured. Subsequent experience in the war showed that many injuries of these cavities recovered without a bad symptom.

Colic, with ruptured stomach, was very prevalent at Modder River Camp, due to the ingestion of sand, taken up both in feeding and watering. Lieut. Southey, A.V.D., fearing to run the risk of exhausting his supply of drugs, tried the treatment of these cases with wood charcoal; the charcoal was suspended in water, and acted well in absorbing the

* Official History of the War, Vol. i., p. 217.

† We believe we are stating the minimum in saying that mounted troops on landing require as many days to recover condition after a voyage as they have been days at sea. The question will be dealt with again in considering the subject of transport by sea.

‡ Official History, Vol. i., p. 232.

** Idem, p. 242.

† Idem, Vol. i., p. 258.

‡ The Battery landed at Cape Town on 25th October, and when called upon to perform this march it had been a month in the country.

gases in the stomach. The charcoal was prepared locally, an ant-heap being converted into a receiver, the wood placed within it, and the air excluded as far as possible.

The veterinary history of the first week's work is very unsatisfactory. The 9th Lancers had been thirty-six days in the country before the action at Belmont, but were not fit. They had come from India and had a very bad passage from Natal to Cape Town. Owing to the ship's fittings giving way during a storm, they lost practically a squadron of horses from injury or washing overboard. To replace these, ninety-three remounts were issued, small Colonial horses, but the saddlery was too big for them. The saddlery of the regiment generally was old and unfit for service; there had been no time to change it before leaving India; what with its old condition and being too big for the remounts, this regiment very early suffered from sore backs. The shoeing also was unsatisfactory; the English shoe was too large and clumsy, both for these horses and the cobs of the Mounted Infantry, and many animals were foot sore owing to shoes being cast.

After Belmont, the condition of the cavalry was, as we have seen, causing anxiety; the hours had been long, a wide front had been covered, and the animals, apart from the weakness resulting from the recent voyage, were not getting sufficient to eat; the water was also bad and scarce. On the day of Graspan, the cavalry covered a twenty-mile front, and when required later on to press the retreating enemy they were unable, through exhaustion, to move out of a walk.

From the facts previously stated, it is evident that the 9th Lancers was unfit to take the Field, even after being landed thirty-six days. This was due not only to the bad voyage, but to the semi-starvation rations allowed it after landing, at a time when the horses should have been generously fed. The regiment was unfit when it crossed the Orange River, and in less than a week it was in a condition of impotence. The endeavour of the Veterinary Service to obtain extra food for the horses before and after the Orange River Operations produced the telegram of 17th December, quoted on p. 15.

The mounted troops after Modder River were in a very bad way, and some of this could, no doubt, have been prevented had there been better horse-mastership. The men remained mounted all day during operations, as if the enemy might at any moment spring out of the earth. The horses stood where grass was growing, but the pattern of bit did not admit of their grazing, and it was apparently considered unsafe to remove this clumsy contrivance from the mouth, even for a short time. The loss of condition accentuated the sore back trouble, some of the horses having saddles on practically day and night; even without them injury was caused to the spine by the surcingle having no pad to keep it off the ridge of the back. Between the 30th November and 8th December some rest was given the horses; good grazing at this period was available, and as we were in possession of the river there was an ample water supply.

After the action at Modder River a number of Boer horses were found, which were appropriated by the troops before any inspection could be made as to their freedom from contagious diseases. This might have been a serious matter, for the enemy throughout the war very properly utilized their experiences with glanders and pleuro-pneumonia, and left behind affected cases, especially of the latter disease, which they knew would be appropriated and cause damage before it could be discovered.

The next attempt for the relief of Kimberley took place on 11th December, when the action at *Magersfontein* was fought. The day was almost entirely for infantry, and the casualties among the mounted troops were small, amounting to 25 horses killed and 38 wounded. It is rifle and not artillery fire which is destructive, though in this engagement a single shell killed four and wounded seven horses in a gun team. In this action there was an additional regiment of cavalry and a battery of horse artillery present, both had been sent round as reinforcements from the Central Force near Naauwpoort. On the day of Magersfontein no advantage was taken of the grass growing in this position, of which there was an abundance, and on return to Modder River, after the retirement, the horses were very tucked up and exhausted.

From the day of Magersfontein until 11th February, 1900, Lord Methuen remained at Modder River awaiting re-inforcements, the Republican Forces keeping to their trenches, which extended for miles on either side of the line, and blocked the road to Kimberley. During this long halt at Modder River sand colic gave much trouble, and cases of laminitis were common. Major Pallin had arrived on 7th December as Senior Veterinary Officer, and did his best to make arrangements for the ever growing sick list. Sore backs among the cavalry were now a veritable epizootic, for though no fighting was going on there were daily patrols and reconnaissance work which afforded very little time for recuperation, and were productive of more saddle injuries. In one regiment alone there were 130 cases of sore back, in which defective saddles played a prominent part. Many were treated locally, but the sick and injured were from time to time drafted south to the hospital at Naauwpoort, 200 miles away by rail. What was urgently needed at this time was a properly equipped veterinary hospital at Modder River, and we shall see later how valuable it would have been during the Kimberley-Paardeberg operations. It was not until 14th January that one was opened at Orange River, a distance of 60 miles away. In connection with the siteing of hospitals, it must always be remembered that the nearer they can be located to the base the easier is it to provide supplies, and these latter become a serious consideration when three or four hundred temporarily useless mouths have to be fed.

Nevertheless, where the distances are considerable, as in the above case, the damage done to the sick by the length of time they are on the road, and the falls they experience in the truck in their weak condition, outweigh the consideration of supplies. The hospital at Naauwpoort had sufficient to do to find accommodation for the sick of the Central Force without receiving any from the Western. Such a system is liable to lead to irregularities, for animals injured in one command should not be sent to another for repair and treatment.

CAPE COLONY.

Central Force, Naauwpoort: Operations, December, 1899, January and February, 1900.

In order to render intelligible the work performed by the horses with the Central Force, it is necessary to understand the military situation. The Republican Forces on the West were, as we have seen, entirely engaged blocking the road to Kimberley. In the centre of the long Cape frontier they had crossed the Orange River and were pushing into the heart of the Colony with the object of securing the railway junction at Naauwpoort. This would have brought them not only behind the Western Force, but paralyzed the transverse railway communication in the Colony. The vital spot, Naauwpoort, had been garrisoned on 2nd October, but with the invasion it had to be evacuated a month later. On the 14th November the Republican Forces were in possession of Colesberg, to which they attached great importance as being the birth place of President Kruger; it was 40 miles north from Naauwpoort. Fortunately on 18th November our forces re-occupied the latter junction, and the objective was not only to hold it, but to keep the large Republican Force held to Colesberg, and so prevent further invasion of the Colony. Between Naauwpoort and Colesberg lies Tweedale 10 miles, Arundel 18 miles, and Rensburg 25 miles distant. The distances from the base were therefore short, and the site selected, with the concurrence of General French—who, as we have seen, proceeded to Naauwpoort on 18th November—for a veterinary hospital when available, was well chosen, and the utility of the place greatly enhanced. From the middle of November to the end of January General French was engaged holding the enemy to their position, yielding ground when compelled, recovering it as opportunity offered, but always maintaining Naauwpoort free from the enemy and the railway operations unimpeded. The covering positions held by the enemy presented a front of upwards of 30 miles in extent, so that some idea may be formed of the distances our cavalry covered in their successful efforts to keep the enemy occupied during the long anxious weeks while awaiting reinforcements from home.

Five cavalry regiments, with squadrons of the New South Wales Lancers, New Zealand Mounted Rifles, some Mounted Infantry, and several batteries of Artillery represented the mounted force employed. The work was incessant, as may be imagined from the previous statement; the food supply was insufficient, especially at first, as the grazing myth predominated; at no time, even for the troops near the railway, did it exceed 8 to 10 lb. grain and 12lb. hay. The troops away from the railway received the same grain ration but only 5 lb. hay. There was fighting on 13th December around Naauwpoort, on 15th at Rensburg and Arundel, on 1st, 4th, 6th and 11th January around Colesberg; but not a day passed that this force had not to present a bold front, and by sheer audacity hold the enemy to his position. General French broke up his command on 31st January and took his cavalry with him to the Western area for the Relief of Kimberley. General Clements took up the command, and after various vicissitudes he occupied Colesburg on 28th February, the Boers retreating across the Orange River in consequence of the surrender of Paardeberg, which has yet to be considered. Such, briefly, is an outline of what occurred during this extremely anxious time.

The importance of establishing as early as possible a Field Veterinary Hospital in this area of operation had been recognised by the Acting P.V.O. at Cape Town, who despatched within a few hours of its arrival from India on 11th December, No. 2 F.V.H., B Section, under Major Forsdyke, to Naauwpoort. This hospital arrived at its destination on 14th December and opened on 16th. No provision had been made for the rations of the Indian natives who comprised its personnel, a difficulty not anticipated by the authorities on the spot. Fortunately, the foresight of the officer in charge of the hospital had caused him to provide himself with ten day's rations for these men, or they would have starved while negotiations on the question were proceeding.* On the 17th December 100 sick animals were admitted to hospital, but there was the usual difficulty in obtaining men to water and feed them.† Further, there were no regulations for the working of a Veterinary Hospital with a Field Army from Home, as no knowledge of this class of work existed outside of India. The men sent to attend to the sick were relieved daily, sometimes hourly for outpost duty. It was evident that the sick could not be properly looked after, not even watered or fed, and the Acting P.V.O. was asked to authorise the engagement of Kaffir labour.

On 28th December, twenty-six horses of the 6th Dragoons were admitted from Arundel with mange; it will be remembered that this regiment was affected on landing. An isolation hospital had now to be constructed for the reception of these cases, which almost daily continued to arrive.

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* It is perhaps necessary to explain that the diet of Indians is different from that of Europeans. Further, Hindoos, Mahomedans and Sikhs are not dieted alike, and these men can only consume food prepared by themselves or co-religionists, or else starve.

† The personnel of the Indian Hospitals is only intended for the nursing of the sick and dressing of the injured.

There was a constant cry from units, both regular and colonial, for Veterinary Officers, but there were none. The pressure was slightly relieved on 25th December by the arrival of two Civil Veterinary Surgeons.‡

The approval of Kaffir labour for the hospital on 2nd January, 1900, placed matters on a much better footing. Many wounded were received in hospital from the fighting which occurred early in January around Colesberg, and ninety sick were at Arundel, mostly cases of mange, belonging to the 6th Dragoons. The sick and wounded which almost daily continued to arrive at Naauwpoort were in a deplorable condition, and the bullet wounds were found to be very puzzling, especially when the same animal had been hit in two or three places. On the 8th January, fifty-two sick horses arrived at this hospital from Modder River, an unfair burden on an establishment already working at pressure under difficulties with the sick of its own Force. The animals generally arrived without head collars or ropes, so that no means existed of tying them up until fresh head collars had been procured from the Ordnance Department; this caused a heavy drain on the resources of the latter service. They also arrived without attendants, with no information regarding them, and their regiment could only be ascertained in a few cases from what was left of the brands on their feet.

In addition to duties connected with the sick, the hospital had to find an advanced Veterinary Store Depôt, and personnel that should have been looking after the sick and wounded had to be employed refilling chests and doling out medicine. No provision for such a Depôt existed in the Regulations, but one was at once established on the initiative of the Acting P.V.O., who knew how impossible it was for units to send to the other side of a sub-Continent for material which should be available on the spot.

A Remount Depôt was also started at Naauwpoort, but had no Veterinary Officer, and the hospital had to furnish veterinary aid, as well as visiting detachments on the Line of Communications. By the middle of January the number of cases of mange in the Inniskillings had become so considerable, and were being left about at so various points on the line, that it was determined to form a Depôt for them at Arundel, and a Civil Veterinary Surgeon was placed in charge. On 25th January the hospital at Naauwpoort, and the mange cases at Arundel were inspected by the Acting P.V.O. from Cape Town. At Arundel there were 80 cases of mange; both healthy and affected animals were using the one water trough, and the Civil Veterinary Surgeon was unable, having no authority, to get the matter put right.* By the end of January the Naauwpoort hospital contained nearly 300 sick. Active military operations by this time were nearly over in this area, but the danger to Naauwpoort, which, as we have seen, was at one time acute, had not entirely passed away, for on 15th February arrangements were made to abandon the sick and save the stores if the enemy attacked the position. The hospital at this time contained a large number of debilitated animals that required rest and grazing. No grazing was available at Naauwpoort, and in consultation with the Remount Department it was decided to ask for authority to send these animals to a farm on which they might be turned out for the needful rest. They were ordered to be sent to Stellenbosch, 570 miles by rail, and many of them through sheer debility never reached their destination. Those that fell through the shaking of the narrow truck had no power to rise, and were trampled to death.

By 16th February, the hospital had been able to discharge 120 horses for duty, but it seemed impossible to be able to cope with the ever-increasing sickness, furnished not only by the troops in the field but also by the Remount Depôt. The number of cases of mange in the 6th Dragoons had now reached 165, and these had, for additional safety, to be isolated outside Naauwpoort, Tweedale being chosen. The sick in hospital, exclusive of debility cases, amounted to 143. Only the worst debility cases were retained, all the others being taken charge of by the Remount Department, and thus, as early as the first weeks of the war, this branch, by its constitution, was burdened with cases it ought never to have been concerned with. The essential duty of the Remount Service is the provision of fit horses for the troops not the care of those which are debilitated or sick.

The following Veterinary Officers were present during the foregoing operations:—Captains Cooper, Richardson and Drage; Lieuts. Sawyer, Carr, Neale (N.Z. Mounted Rifles), and Melhuish (N.S.W. Lancers); Civil Veterinary Surgeons Head, Oliver and Webb.

CAPE COLONY.

Eastern Force, Stormberg: Operations, December, 1899.

The third point at which invasion of the Colony was effected occurred on the Eastern frontier at Bethulie and Aliwal North, both on the Orange River. Under pressure of the advancing Republican Forces, the important Junction of Stormberg had been evacuated on 3rd November, and the Eastern railway line was cut off completely from the other part of the Colony. The recovery of the Junction was the first objective of General Gatacre, and the force for this concentrated at Queenstown towards the end of November.

‡ During the latter days of December, the first batch of Civil Veterinary Surgeons engaged by the Director-General in England arrived at the Cape. They were shared between Cape Colony and Natal, the latter being pressed for veterinary aid owing to the large number of officers shut up in Ladysmith. It is regretted that the names of the gentlemen serving with the various units are only known in a few cases, but a complete list will be published later of all who proceeded to South Africa for duty.

* It is to be hoped that in future wars all these gentlemen will be given temporary commissions, for the representations of a civilian carry no weight in an army.

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